

ENGLISH

**DJ21, DJ22 ,DJ23, DJ33
INSTRUCTION MANUAL**

INTRODUCTION

In regard to the M900/DJ, it is important to carefully study the following Instruction Manuals on PEGASUS' website and fully understand the contents.

- M900/DJ TO USE THE MACHINE SAFELY
- M900/DJ INSTRUCTIONS

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1. SPECIFICATION

1-1. Specifications of the control box

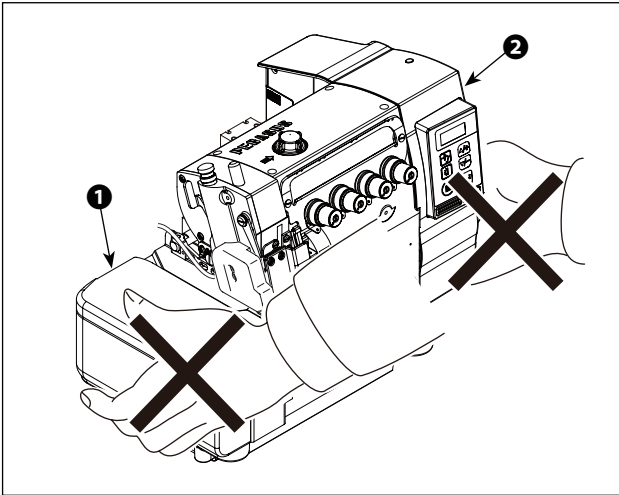
Rated voltage	Single phase 220 to 240V	Single phase 220 to 240V (EU type)	
Frequency	50Hz/60Hz	50Hz/60Hz	
Operating environment	Temperature : 0 to 35°C Humidity : 90% or less	Temperature : 0 to 35°C Humidity : 90% or less	
Rated Input	370VA	330VA	

2. INSTALLATION

WARNING :



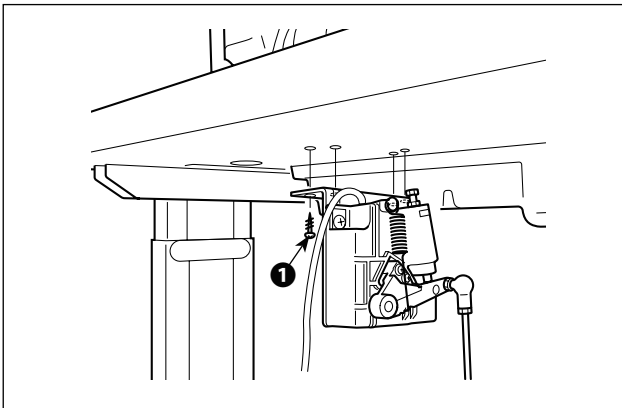
- Machine installation should only be carried out by a qualified technician.
- Contact your dealer or a qualified electrician for any electrical work that may need to be done.
- The sewing machine weighs 30.5 kg. The installation should be carried out by two or more people.
- Do not connect the power cord until installation is complete. The machine may operate if the treadle is depressed by mistake, which could result in injury.
- Use both hands to hold the machine head when tilting it back or returning it to its original position. If only using one hand, the weight of the machine head may be too heavy to hold, and may cause human physical injuries.
- To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



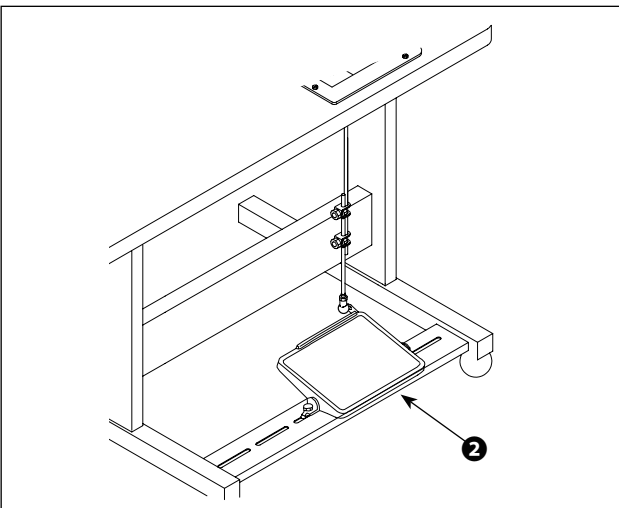
1. After unpacking, do not carry the sewing machine holding the lower section of cloth plate cover ①.
2. Do not hold the bottom section of the electrical box cover ②.



2-1. Installing the pedal sensor



- 1) Install the pedal sensor to the table with mounting screws ① supplied with the unit. It is necessary to install the pedal sensor at such a position that the connecting rod is perpendicular to the table.
- 2) After the completion of installation of the pedal sensor on the table, place the sewing machine head on the table.



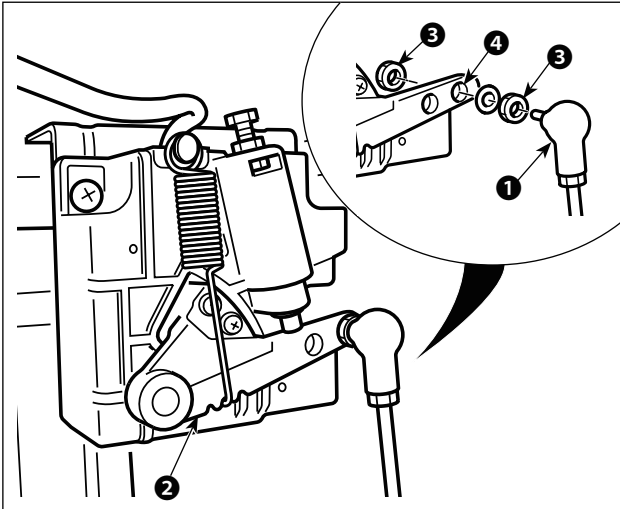
- 3) Assemble motor starting pedal ②.

2-2. Attaching the connecting rod



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and a lapse of 5 minutes or more.



Fix connecting rod ① to installing hole ④ of pedal lever ② with nut ③ .

2-3. Air piping



WARNING :

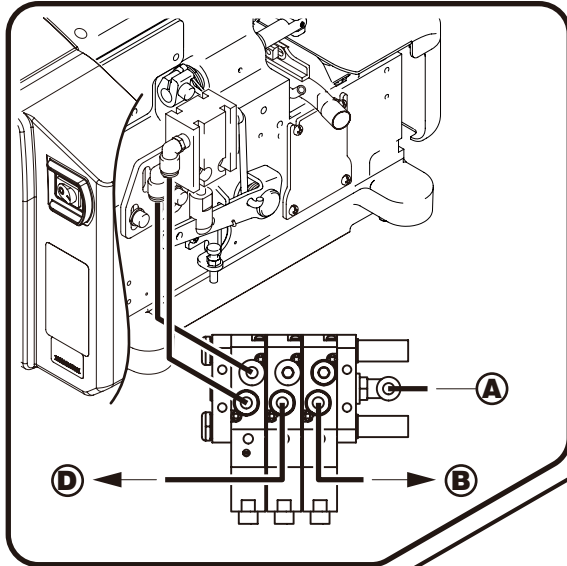
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

[DJ21 and DJ22 (without the thread releaser function)]

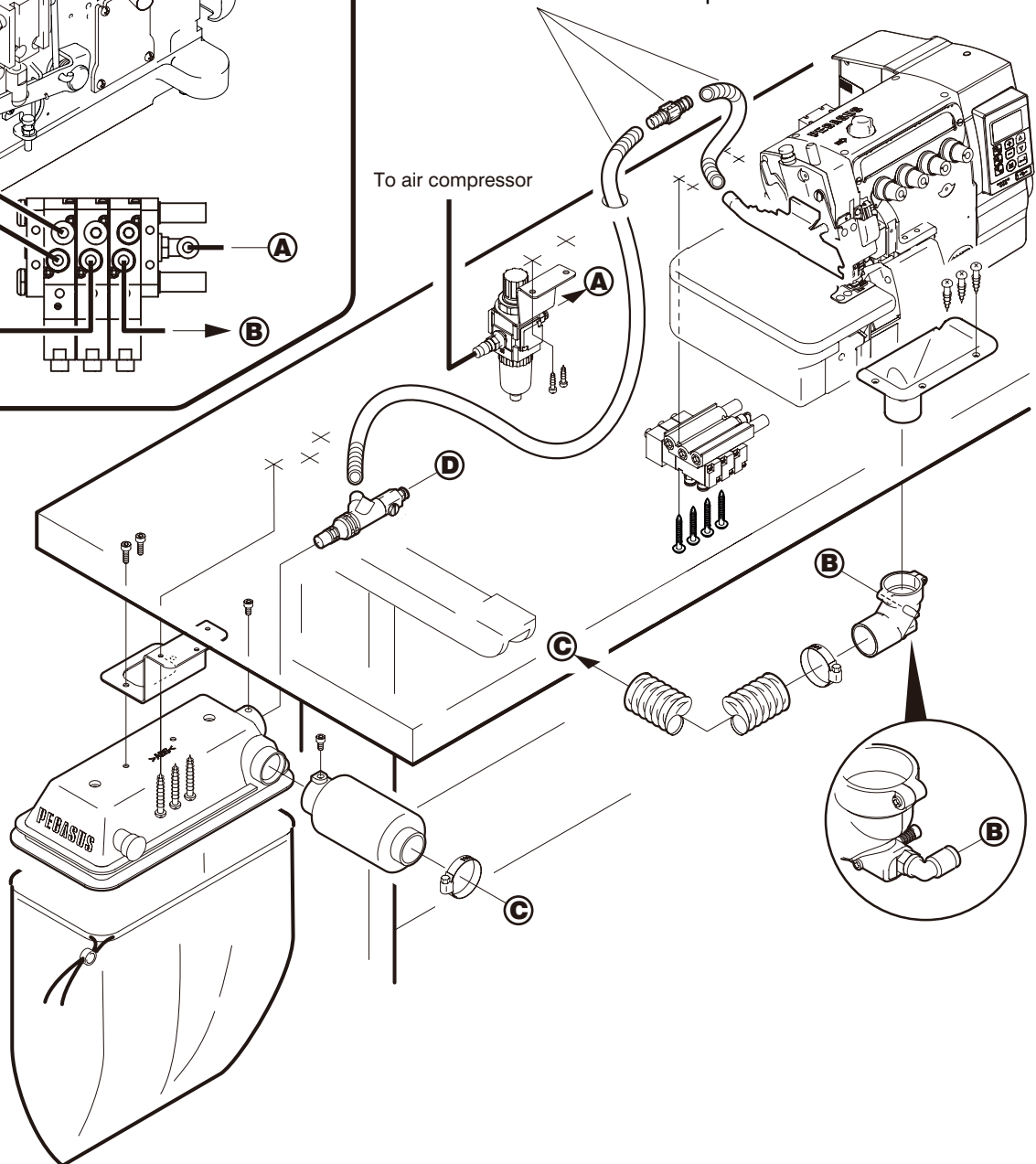
1) Connect air tubes by referring to the illustration below.



Connect other lines first before connecting to the air source.

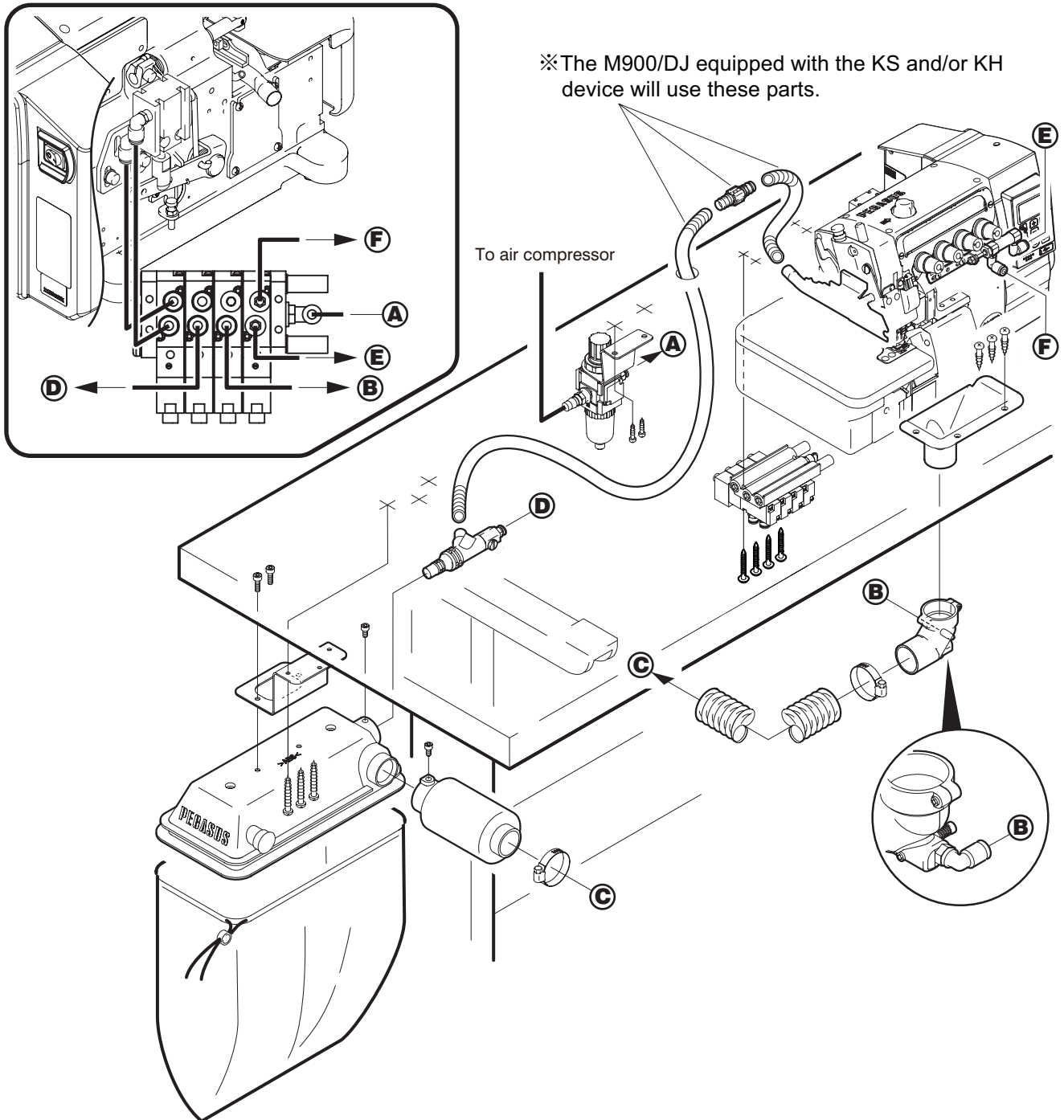


※The M900/DJ equipped with the KS and/or KH device will use these parts.

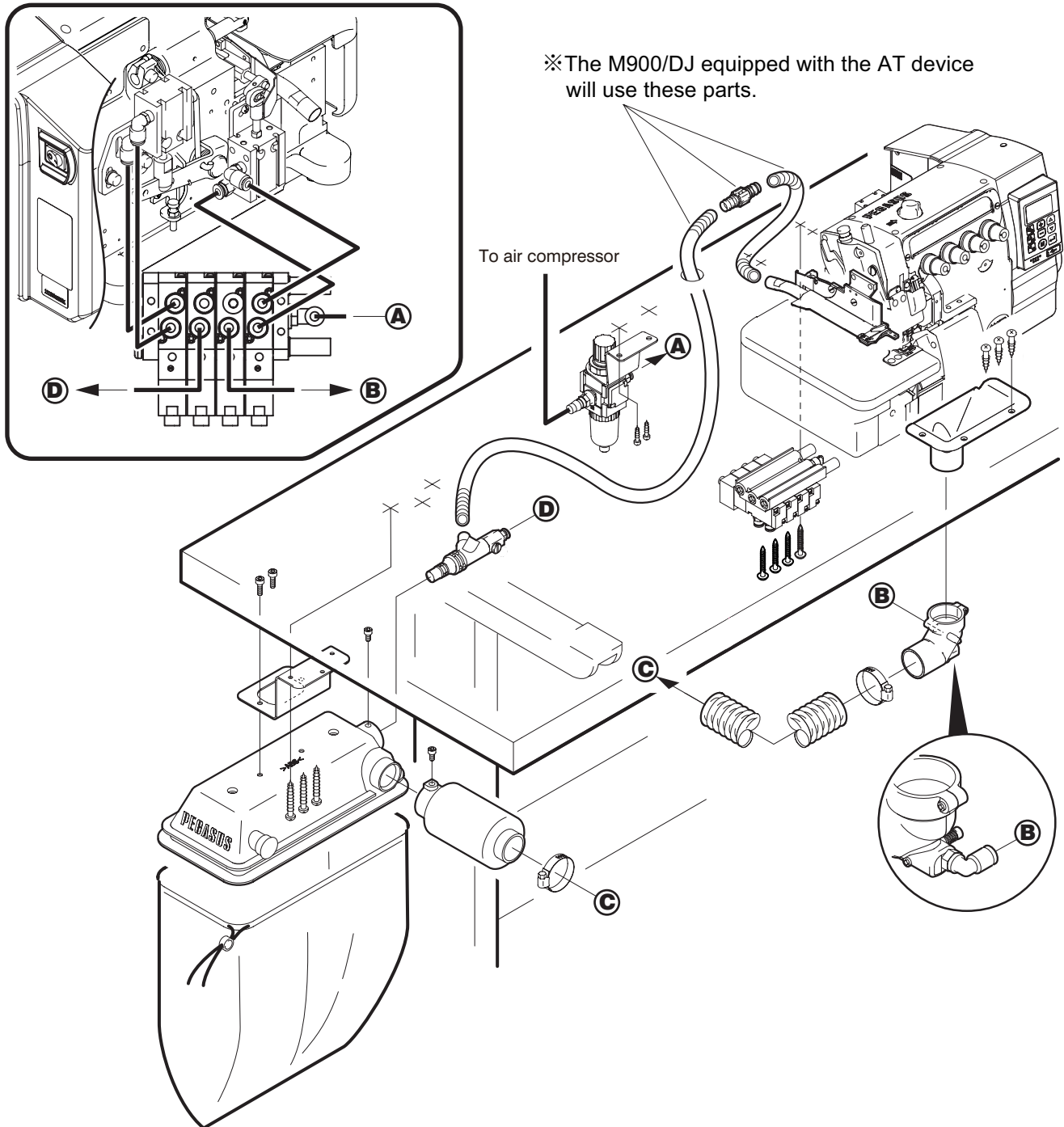


[DJ21 and DJ22 (with the thread releaser function)]

1) Connect air tubes by referring to the illustration below.



1) Connect air tubes by referring to the illustration below.

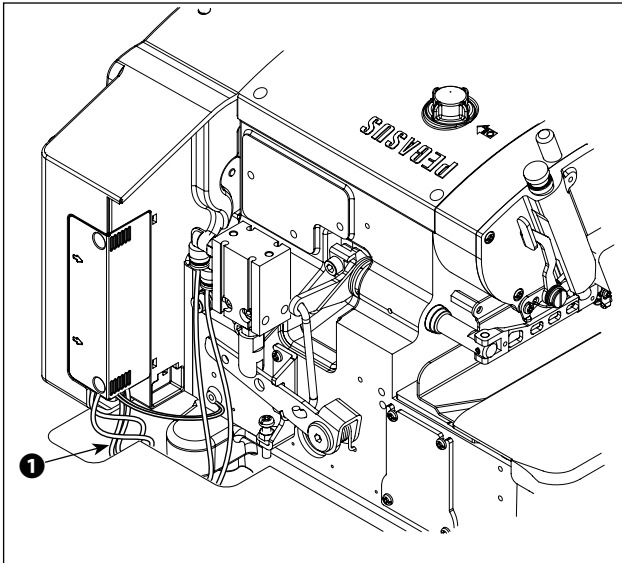


2-4. Connecting the connector

WARNING :



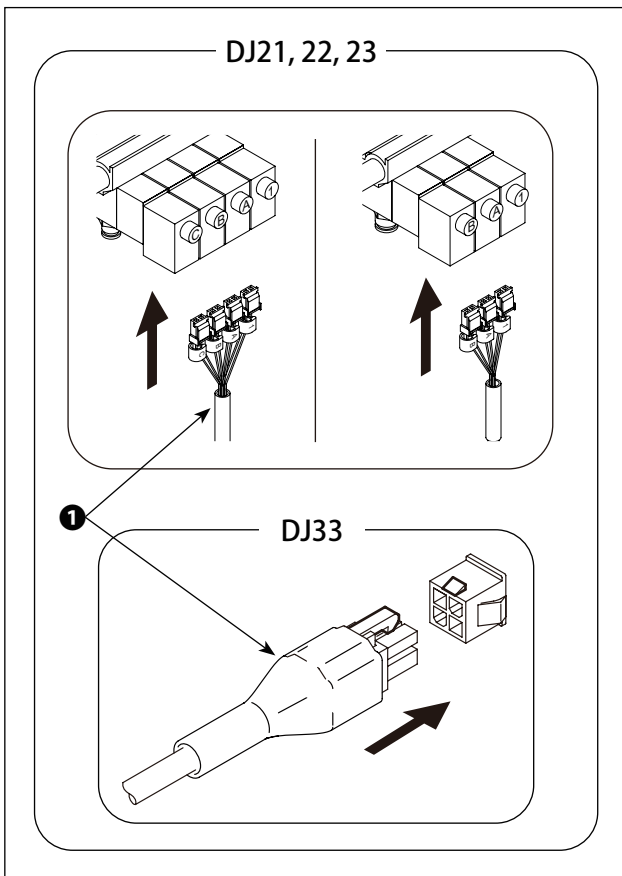
- To protect against personal injury resulting from abrupt start of the sewing machine, be sure to turn the power OFF, unplug the machine and wait for five minutes or more before installing the pedal sensor.
- To prevent damage of device caused by maloperation and wrong specifications, be sure to connect all the corresponding connectors to the specified places. (If any of the connectors is inserted into a wrong connector, not only the device corresponding to the connector can break but also it can start abruptly, inviting the risk of personal injury.)
- To prevent personal injury caused by maloperation, be sure to lock the connector with lock.
- Do not connect the power plug until the connection of cords is completed.
- Fix the cords while taking care not to forcibly bend them or excessively clamp them with staples.
- As for the details of handling respective devices, read carefully the Instruction Manuals supplied with the devices before handling the devices.



1. Do not insert the power plug into the wall outlet.
2. Check to be sure that the power switch is turned OFF.
3. Be sure to fully insert the connectors into the corresponding ports until they are locked.



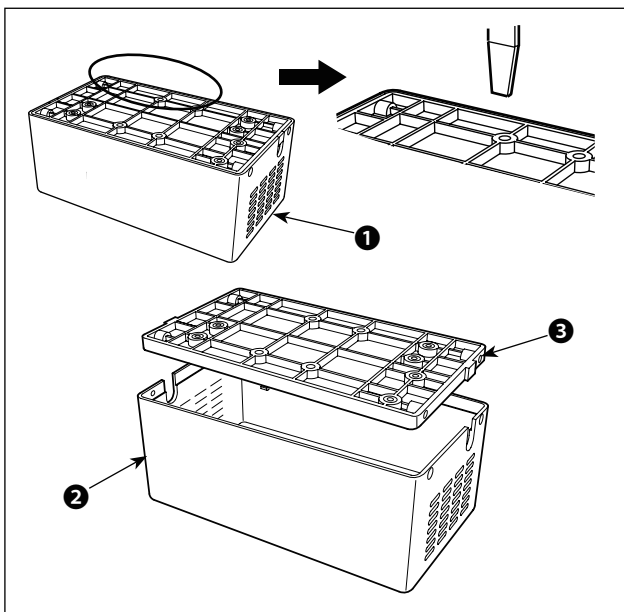
- 1) Draw out unconnected cables ❶ on the control box to the undersurface of the table.



- 2) Connect cables ❶ to the corresponding connector under the table.

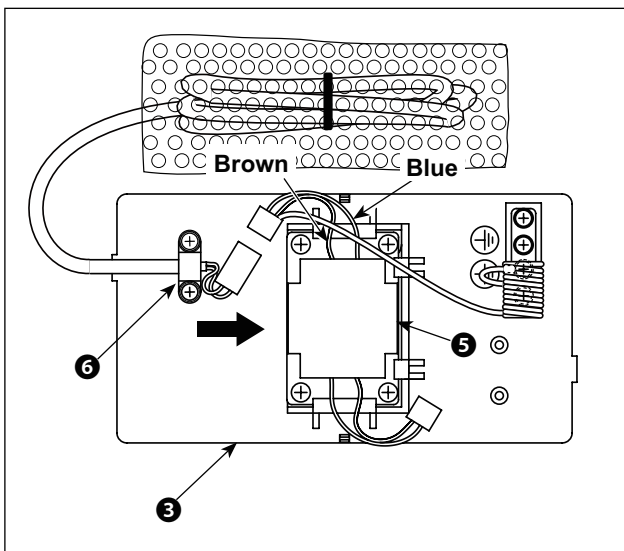
2-5. Installing the reactor box [only for the EU type models]

* For the EU-type models, install the reactor box that is supplied with the sewing machine.



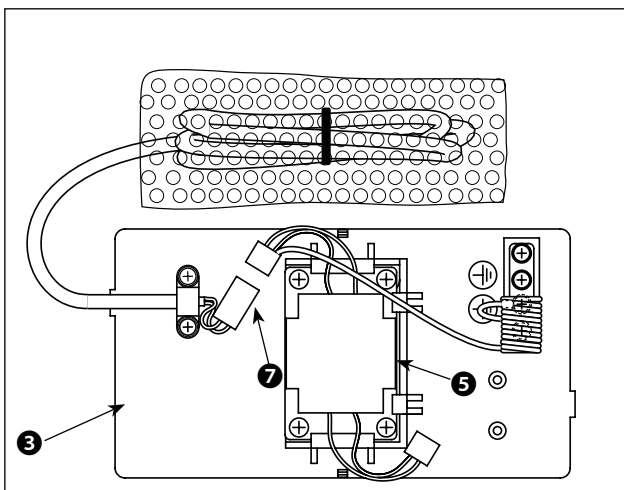
- 1) Detach reactor cover **2** from reactor box **1** to separate from reactor base asm. **3**.

* The reactor cover can be detached with ease by inserting a tool that has a thin flat tip such as a flat-blade screwdriver between the cover and base.



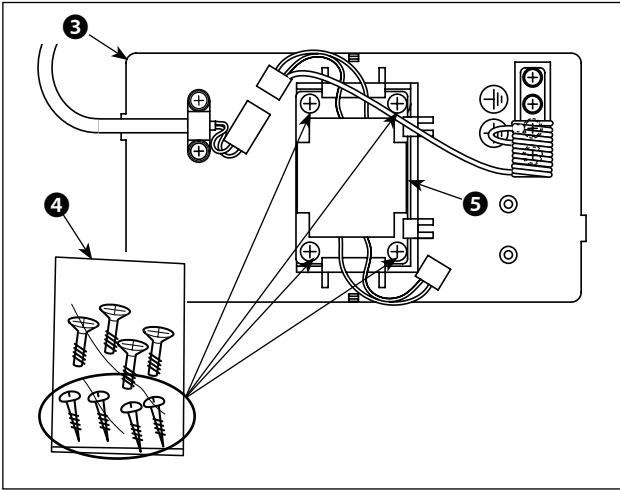
- 2) Slide reactor **5** in the direction of the arrow to insert into reactor base asm. **3**.

- Caution**
1. When inserting the reactor, detach bundled wire clamp **6** beforehand.
 2. Insert reactor **5** into the reactor base asm. while facing brown and blue lead wires side upward.



- 3) Connect the connector **7** of the power cord that is fixed to reactor base asm. **3** to the connector of reactor **5**.

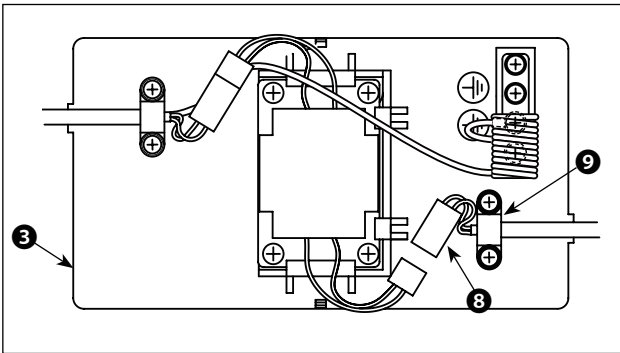
Caution Be sure to insert the former fully into the latter until the connector is locked.



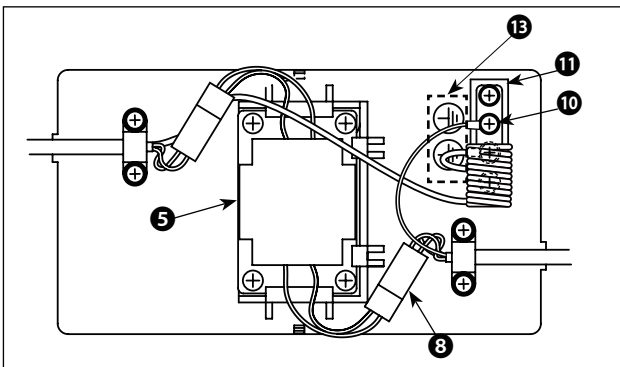
- 4) Take out wood screws (ST4.2 x 25) from screw bag 4 . Secure reactor base asm. 3 and reactor 5 to the undersurface of sewing machine table with the wood screws (at four locations).



Refer to the instruction figure shown in the following step of procedure 10) for the mounting positions of the reactor cover and reactor base asm.



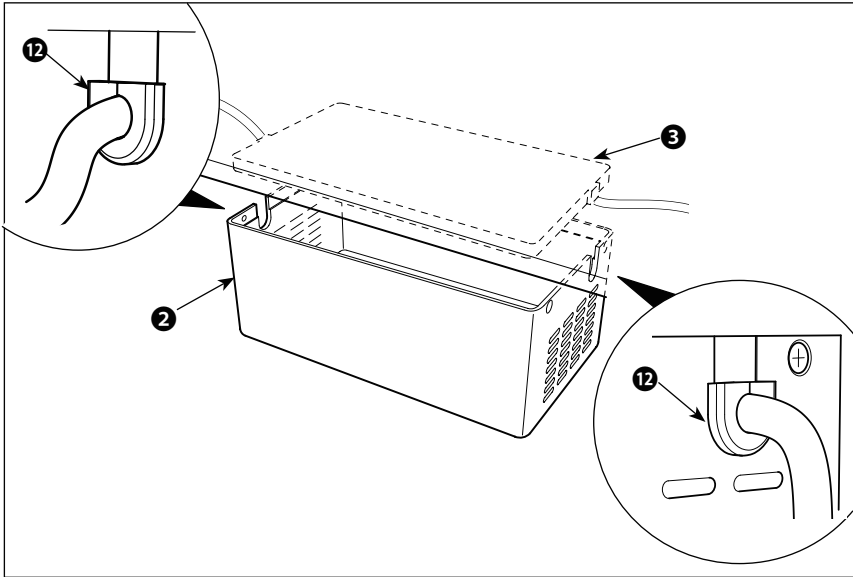
- 5) Secure power cord asm. 8 coming from the electrical box to reactor base asm. 3 with bundled wire clamp 9 .



- 6) Connect the connector of power cord asm. 8 to connector of reactor 5 .
- 7) Secure earth terminal 10 of power cord asm. 8 to earth base 11 with a screw.



Secure the earth terminal to the screw with earth mark 13.

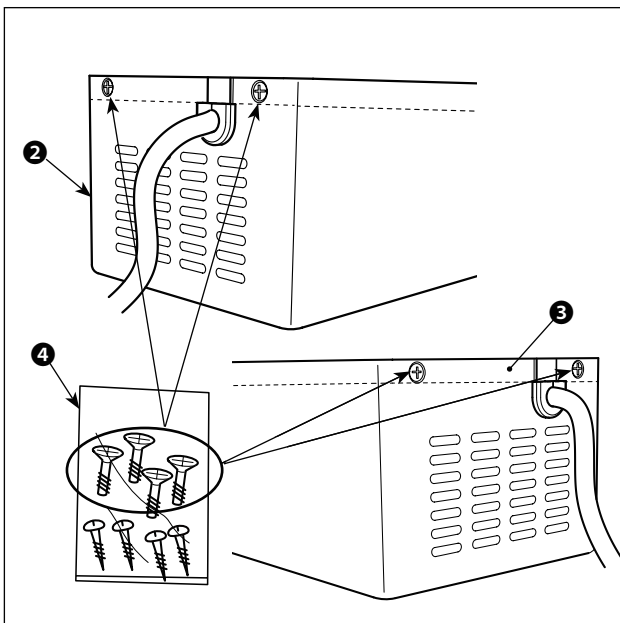


- 8) Fit reactor cover **2** over reactor base asm. **3**.

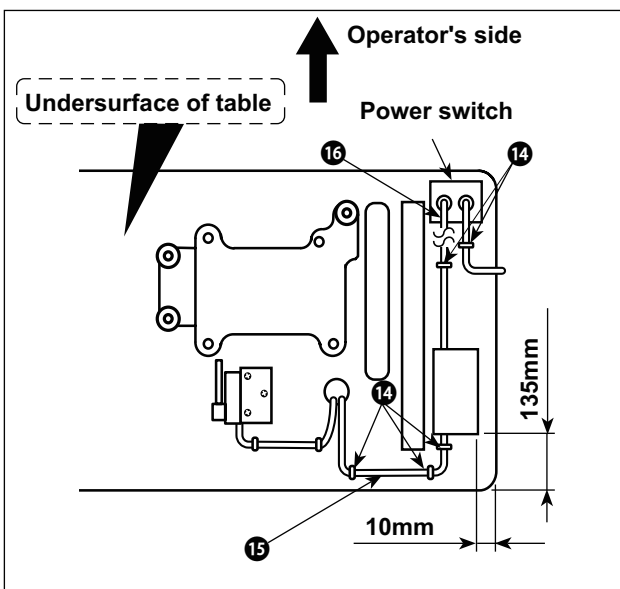


Take care not to allow the cord to be caught under reactor cover **2**.

Pass the power cord through cord bushing **12**. Then, insert the power cord into the slit portion of reactor cover **2** and hold it with reactor base asm. **3**.



- 9) Take out reactor cover fixing screws from screw bag **4**. Secure reactor cover **2** to reactor base asm. **3** with the fixing screws (at four locations).



- 10) Attach AC input cable **15** and output cable **16** on the undersurface of table using supplied staple **14**.

At this time, take care not to cross the input- and output-cables **15 16**.



AC input cable **15** and output cable **16** should be used with lightly bundled with an accessory cable clip band.

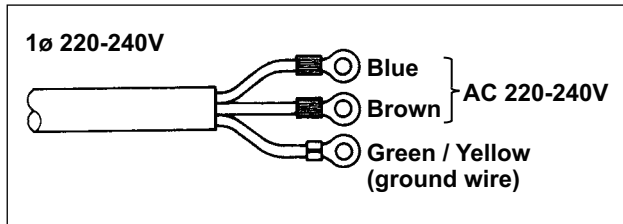
2-6. How to install the power plug



WARNING :

1. Be sure to attach the ground wire (green/yellow) to the specified location (on the ground side).
2. Take care not to allow terminals to come in contact with each other.

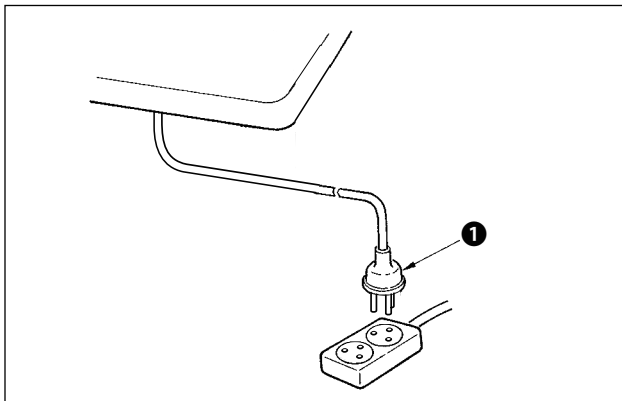
[SINGLE PHASE 220-240V]



- 1) Connect the power cord to power plug ❶. Connect the blue and brown wires (1ø) to the power supply side and the green/yellow wire to the earth side as illustrated in the figure.



1. Be sure to prepare the power plug ❶ which conforms to the safety standard.
2. Be sure to connect the ground lead (green/yellow) to the grounding side.



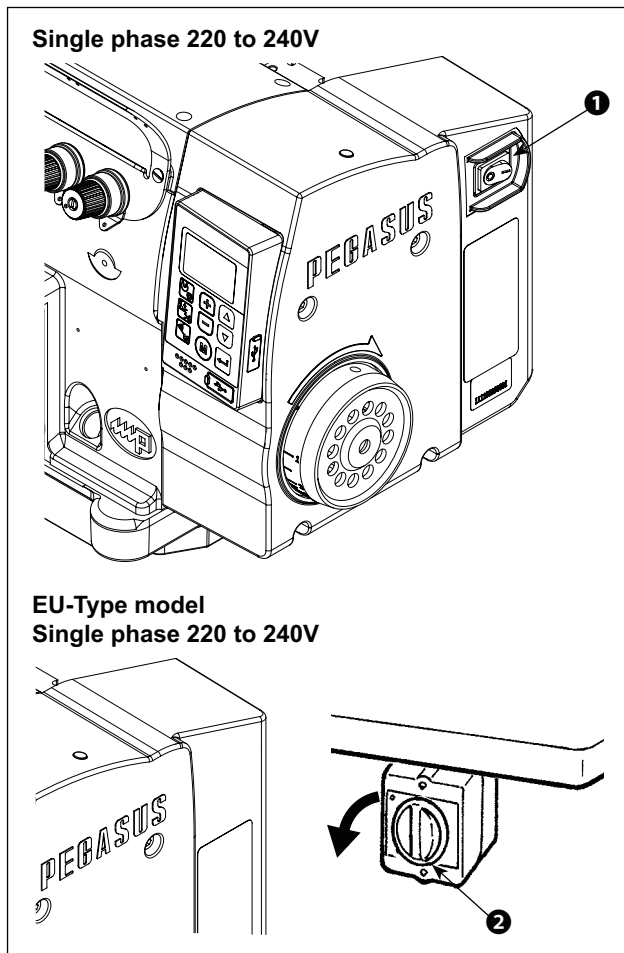
- 2) Check that the power switch is in the OFF state. Then, insert the power plug ❶ coming from the power switch into the plug receptacle.



In prior to the connection of the power plug ❶, re-check the supply voltage specification indicated on the control box.

- * The power plug ❶ is different in shape according to the destination of the sewing machine.

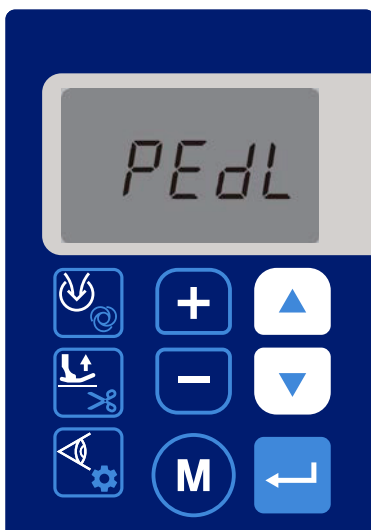
2-7. Power switch



- 1) Turning the power ON with the power switch **1** **2**.
The power to the sewing machine is placed in the ON state when the "I" mark side of power switch **1** (1ø 220 - 240V type) is pressed; or in the OFF state when the "0" mark side is pressed. The power to the sewing machine is placed in the ON state when the knob of power switch **2** (EU type, 1ø 220 - 240V type) is turned by 90 degrees counterclockwise; or in the OFF state when it is turned clockwise to return to its home position.

1. Do not strongly tap the power switch by hand.
2. If the power indicator LED on the panel does not light up after having turned ON the power switch **1** **2**, immediately turn OFF the power switch and check the supply voltage.
When you want to re-turn ON power switch **1** **2** after carrying out the aforementioned steps, it is necessary to wait for five minutes or more after you have turned OFF power switch **1** **2**.
3. Do not place your hand or anything under the needle since the needle bar may automatically move according to the memory switch setting when you turn ON the power to the sewing machine.
4. When you turn ON the power to the sewing machine while the full automatic mode is set selected, the sewing machine will not start sewing for the sake of safety as long as the front sensor is blocked.

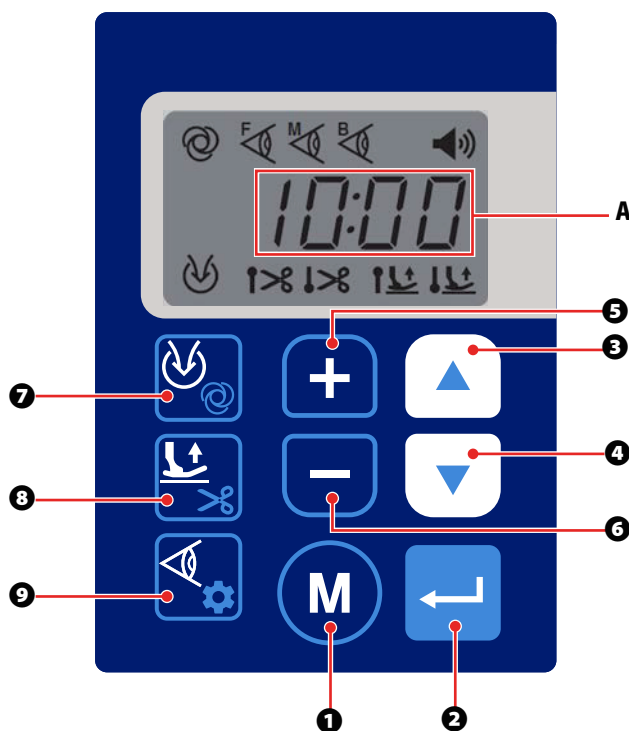
If you want to re-start sewing under the full automatic mode, remove the obstacle that blocks the front sensor, block the front sensor again with the material to be sewn and depress the front part of the pedal once.




5. When you turn ON the power to the sewing machine while the full automatic mode is set selected, "PEDL" will be displayed on the operation panel as shown in the figure on the left.
If you want to start sewing, depress the front part of the pedal once.
6. When you turn ON the power to the sewing machine for the first time after purchase, the sewing machine will start under the semi-automatic mode for the sake of safety.
Change the mode from the semi-automatic mode to any sewing mode you want to use.
Refer to "3-5. Details of setting of the main functions" p.23 for details of the changes made to the sewing machine.

3. OPERATION PROCEDURE

3-1. Operation panel



No.		How to press the button	Function
①		Short time	This button is used for changing over the current mode to the function setting mode.
		Long time	This button is used for setting the time.
②		Short time	This button is used for confirming the setting you have changed.
③		Short time	This button is used for increasing the maximum sewing speed.
		Long time	Continuous input is enabled
④		Short time	This button is used for decreasing the maximum sewing speed.
		Long time	Continuous input is enabled
⑤		Short time	This button is used for increasing the current numerical value on the function setting screen.
		Long time	Continuous input is enabled
⑥		Short time	This button is used for decreasing the brightness of the hand illumination LED.
		Long time	Keeping this button held pressed changes the color of the hand illumination LED.
⑦		Short time	This button is used for changing the setting of the suction device.
		Long time	Keeping this button held pressed changes over the sewing mode.
⑧		Short time	This button is used for changing the setting of the presser foot.
		Long time	Keeping this button held pressed changes the setting of the thread trimmer (only for the DJ23/DJ33 model).

No.		How to press the button	Function
9		Short time	This button is used for displaying the sensor values.
		Long time	Keeping this button held pressed changes over the screen to the sensor sensitivity adjustment screen.
	A		This LCD displays the current time. " : " blinks on this LCD while the sewing machine is in operation.

3-2. Font comparison table

Arabic figures:

Actual shape of figure	0	1	2	3	4	5	6	7	8	9
Display	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>

Arabic figures:

Actual shape of figure	A	B	C	D	E	F	G	H	I	J	K	L	M
Display	<i>A</i>	<i>b</i>	<i>C</i>	<i>d</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>i</i>	<i>J</i>	<i>L</i>	<i>L</i>	<i>M</i>
Actual shape of figure	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Display	<i>n</i>	<i>o</i>	<i>P</i>	<i>q</i>	<i>r</i>	<i>S</i>	<i>T</i>	<i>U</i>	<i>v</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>

3-3. Function setting

Functions can be selected and set as described below.



- 1) Press **M** ① .

The display on the display section **A** is changed over to display the Function setting No. (P- * *).

(The display item that has been previously changed is displayed unless you have turned the power OFF after you changed the setting last time.)

- * If the display on the screen fails to change, carry out the operation procedure 1) again.

Be sure to re-turn ON the power switch after 10 seconds or more have passed after you turned OFF the power switch. If you re-turn ON the power switch immediately after you have turned it OFF, the sewing machine may fail to operate normally. In such a case, be sure to re-turn ON the power switch. Functions can be selected and set as described below.

- 2) When you want to change the function setting number, change it by pressing **+** ⑤ and **-** ⑥ .

Change it by pressing **+** ⑤ and **-** ⑥ .

- 3) When you press **←** ② after you have changed the function setting number, the set value of the relevant function setting number is displayed.

- 4) Change the set value by pressing **+** ⑤ and **-** ⑥ .

- 5) Confirm the set value by pressing **←** ② .

- * If you have changed the set value during sewing, there is a parameter that enable the set value when you depress the back part of the pedal.

- 6) If you keep **↻** ⑦ held pressed without confirming the set value in step 5), only the set value that is currently selected can be saved to memory. While the set value is being saved, the word "SAVE" is displayed on the screen.

After the set value has been saved, the screen returns to the normal sewing screen.

Refer to **"3-8. Initialization of the function setting data"** p.36 for how to initialize the function setting data.

- 7) If you press **⚙** ⑨ without confirming the set value in step 5), the set value that is currently selected can be changed to the value you have stored in memory in step 6).

If you do not store the set value in memory as described in step 6), the set value will be restored to the initial value that has been factory-set at the time of shipment.

3-4. Function setting table

No	Item	Description	Range	Initial value					
				DJ21/DJ22			DJ23/DJ33		
				0 : Gen- eral	1 : High lift	2 : Extra- high lift	3 : Gen- eral	4 : High lift	5 : Extra- high lift
P001	Maximum sewing speed	The maximum sewing speed is limited with the function setting number P121. Regarding the right column (0: General, 1: High lift, 2:Extra-high lift, 3: General, 4: High lift, 5:Extra-high lift), setting is available with the function setting number P125. (They can be set under the Service Level mode.) (Unit: stitches / mintue)	200-7000	5000	5000	5000	5000	5000	5000
P002	Soft start ON / OFF	This function setting number is used for setting ON / OFF of the soft-start function. (0: OFF 1: ON)	0-1	1			1		
P003	Soft-start sewing speed	This function setting number is used for setting the soft-start sewing speed at the beginning of sewing. (Unit: sti/min)	200-6000	3000			3000		
P004	Number of soft-start stitches	This function setting number is used for setting the number of stitches to be sewn with the soft-start function at the beginning of sewing. (Unit: stitch)	1-100	30			30		
P005	Sewing-end speed reduction ON / OFF	0 : OFF / 1 : ON	0-1	0			0		
P006	Sewing-end speed reduction, number of stitches	Number of stitches to be sewn before starting reduction in speed after the material end has passed the front sensor (Unit: stitch)	1-200	1			1		
P007	Sewing-end speed reduction, sewing speed	This function setting number is used for setting the reduced sewing speed to be employed at the end of sewing. (Unit: sti/min)	500-7000	3500			3500		
P008	Foot pedal acceleration factor	The more the acceleration factor is increased, the less the stepping depth of the foot pedal to reach the maximum number of revolutions becomes. The less the acceleration factor is decreased, the more the stepping depth of the foot pedal to reach the maximum number of revolutions becomes. It should be remembered, however, the maximum speed will not be reached even when you depressed the foot pedal as far as it goes if the acceleration factor is excessively decreased.	0-100	32			32		
P009	Acceleration factor of the foot pedal for standing work		0-100	32			32		
P013	Stop position selection	This function setting number is used for setting the needle stop position. (0: Lower stop position / 1: Upper stop position)	0-1	0			0		
P014	Selection of needle stop position after the completion of thread trimming	This function setting number is used for setting the stop position of the needle after the completion of thread trimming. (0: Lower stop position / 1: Upper stop position)	0-1	1			1		
P017	One shot	When the full automatic mode is selected, it is possible to set the sewing starting method; either automatic start or by pressing the foot pedal, to be used after the front sensor has detected the material. (0: Automatic / 1: Foot pedal)	0-1	1			1		
P018	Full / semi automatic mode	In the case "ON" is selected with the function setting number "P020: Automatic sensor ON / OFF", the type of automatic mode; either full-automatic or semi-automatic mode, should be selected with this function setting number. (0: Semi automatic / 1: Full automatic)	0-1	0			0		
P019	Continuous sewing under semi-automatic mode	In the case the semi-automatic mode is selected, it is possible to start the next sewing with the front part of the foot pedal held depressed after the completion of thread trimming. If the function is set to "OFF", it will be necessary to return the foot pedal to its neutral position. (0 :OFF / 1: Continuous sewing by depressing the front part of foot pedal)	0-1	1			1		
P020	Automatic sensor ON / OFF	This function setting number is used for selecting use / no-use of the sensor. If "OFF" is selected, the sewing machine will be operated under the manual mode. (0: OFF / 1: ON)	0-1	1			1		
P021	Front sensor ON / OFF setting	In the case the front sensor has failed, this function setting number should be set to "OFF". If P021 is set to "OFF", the full automatic mode cannot be used. (0: OFF / 1: ON)	0-1	1			1		

No	Item	Description	Range	Initial value	
				DJ21/DJ22	DJ23/DJ33
P022	Intermediate sensor ON / OFF setting	In the case the front sensor has failed, this function setting number should be set to "OFF". (0: OFF / 1: ON)	0-1	1	1
P023	Rear sensor ON / OFF setting	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". If both P022 and P023 are set to "OFF", the automatic mode of DJ23/DJ33 cannot be used. (0: OFF / 1: ON)	0-1	0	1
P024	Number of stitches between both sensors	This function setting number is used for setting the number of stitches to be sewn after one sensor has detected the material and before the next sensor does. If the next sensor fails to detect the material, the sewing machine will stop running after it has sewn the number of stitches set with this function setting number. (Unit: stitch)	1-600	20	20
P025	Stop-delay number of stitches	This function setting number is enabled in the case the rear thread trimmer is set to "OFF". The sewing machine stops after it operates by the number of stitches set with this function setting number after the material has passed the last sensor. (Unit: stitch)	0-99	0	6
P026	Free stitching ON / OFF	It is possible to select either the semi-automatic mode or the free stitching with this function setting number. In the case the free stitching is selected, the sewing machine will not stop running if the front part of the pedal is held depressed after the completion of thread trimming. (0: OFF / 1: ON)	0-1	0	0
P029	Automatic thread trimming ON / OFF	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". It is possible to select the operation of the automatic thread trimmer with this function setting number. (0: OFF / 1: Front thread trimmer / 2: Rear thread trimmer / 3: Front and rear thread trimmers)	0-3	3	3
P030	Automatic constant-speed thread trimming ON / OFF	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". It is possible to select the operation of the automatic thread trimmer with this function setting number. (0: OFF / 1: Automatic constant-speed thread trimming)	0-1	0	0
P031	Front thread trimmer, starting number of stitches	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of stitches to be sewn until the front thread trimmer operates after the material has passed the intermediate sensor. The smaller this value is set, the longer the remaining thread length becomes. (Unit: stitch)	0-50	0	6
P032	Rear thread trimmer, starting number of stitches	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of stitches to be sewn until the rear thread trimmer operates after the material has passed the rear sensor. The smaller this value is set, the shorter the remaining thread length becomes. (Unit: stitch)	0-50	0	5
P033	Number of stitches to prevent cloth trimming	In the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection" (setting is enabled for the Service level), the sewing machine stops running or the rear thread trimmer operates after the sewing machine has sewn the number of stitches set with this function setting number after the material has passed the intermediate sensor In the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection" setting is enabled for the Service level), and the function setting number "P023 Rear sensor ON / OFF setting" is set to "OFF", the sewing machine stops running or the rear thread trimmer operates after the sewing machine has sewn the number of stitches set with this function setting number (P033) and the number of stitches set with P032 after the material has passed the intermediate sensor. The number of stitches set with this function setting number should be referred to in the case "1: Check pattern material" is selected with the function setting number "P089 Check pattern material". (Unit: stitch)	0-50	0	15

No	Item	Description	Range	Initial value	
				DJ21/DJ22	DJ23/DJ33
P034	Number of stitches to prevent cloth trimming	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". If the rear sensor detects the material before the front thread trimmer operates, the operation of the front thread trimmer will be cancelled. (0: OFF / 1: ON)	0-1	1	1
P035	Thread trimming time	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". Thread trimmer operating time is set with this function setting number. (Unit: ms)	30-990	60	60
P036	Manual mode, thread trimming by depressing back-part of foot pedal ON / OFF	In the case the manual mode is selected, thread trimmer operation carried out by depressing the back part of the foot pedal is set with this function setting number. (0: Without thread trimming / 1: With thread trimming)	0-1	0	0
P038	Tension release ON / OFF	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the tension release function to ON or OFF. (0: OFF / 1: Front open / 2: Rear open / 3: Front and rear open)	0-3	3	0
P039	Tension-release continuing number of stitches at the beginning of sewing	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of stitches to be sewn at the beginning of sewing with the thread tension released continuously after the front sensor has detected the material. (Unit: stitch)	1-50	5	1
P040	Tension-release continuing number of stitches at the end of sewing	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of stitches to be sewn at the end of sewing with the thread tension released continuously after the machine runs the number of stitches set with the function setting number P041. (Unit: stitch)	1-100	40	1
P041	Number of stitches to start releasing the tension at the end of sewing	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the delaying number of stitches to be sewn before the tension-release operation is started at the end of sewing after the material has passed the intermediate sensor. (Unit: stitch)	0-50	0	0
P042	Manual thread trimming, duration	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the duration during which the thread trimmer operation is continued after the hand switch is pressed and released. (Unit: x100ms) As long as the hand switch is held pressed, the thread trimmer continues operation.	1-50	3	3
P043	Manual thread trimming, motor speed	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of revolutions of the motor that operates the thread trimmer when the hand switch is pressed. (Unit: sti/min)	500-7000	3500	3500
P044	Manual thread trimming, the number of times	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of times to operate the thread trimmer. (Unit: Number of times)	1-5	1	1
P045	Manual thread trimming, time interval	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". In the case the number of times of thread trimming is set to "2 or more" with the function setting number P044, the time interval set with this function setting number (P045) is used. (Unit: ms)	30-990	50	50

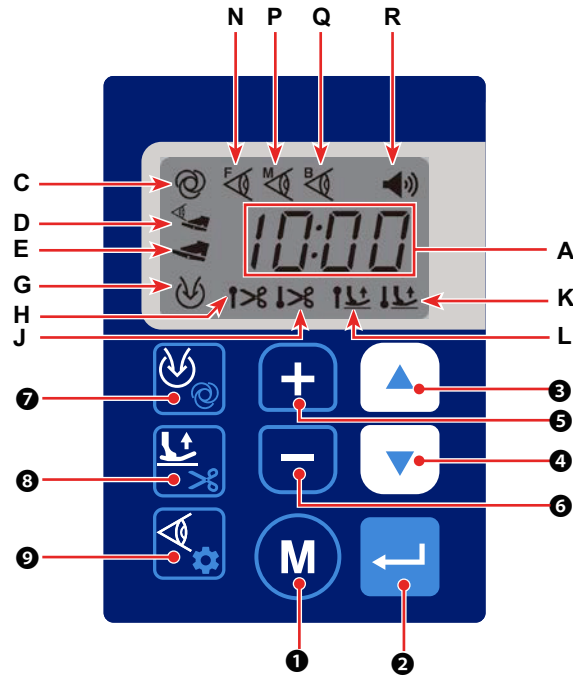
No	Item	Description	Range	Initial value	
				DJ21/DJ22	DJ23/DJ33
P049	Automatic suction ON / OFF (for the thread chain)	Type of operation of the automatic suction can be selected with this function setting number. (0: OFF / 1: Front suction / 2: Rear suction / 3: Front and rear suction)	0-3	3	3 (for DJ23)
P050	Front suction (for the thread chain), continuing number of stitches	This function setting number is used for setting the number of stitches to be sewn continuously until the front suction stops after the intermediate sensor has detected the material. (Unit: stitch)	0-50	8	8 (for DJ23)
P051	Rear suction (for the thread chain), continuing number of stitches	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the number of stitches to be sewn continuously until the rear suction stops after the machine runs the number of stitches set with the function setting number P052. (Unit: stitch)	0-100	35	5
P052	Rear suction (for the thread chain), starting number of stitches	This function setting number is enabled only in the case "DJ21/DJ22" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the delaying number of stitches to be sewn before the rear suction starts after the material has passed the intermediate sensor. (Unit: stitch)	0-50	3	3
P053	Rear suction (for the thread chain), duration	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". This function setting number is used for setting the duration of suction until the rear suction is stopped after the rear thread trimmer has started. (Unit: ms) If the rear thread trimmer is set to "OFF", the rear suction will not operate.	0-5000	200	200 (for DJ23)
P054	Manual suction ON / OFF	It is possible to select the type of operation of manual suction to be carried out by pressing the hand switch. (0: OFF / 1: Rear suction (for the thread chain) / 2: Front and rear suction (for the waste and the thread chain))	0-2	1	1 (for DJ23)
P055	Manual suction, duration	This function setting number is used for setting the duration of suction until the suction (set with P054) is stopped by pressing the hand switch. (Unit: ms)	0-2000	500	500 (for DJ23)
P056	Low pressure mode ON / OFF	If the supplied air pressure is low, set this function setting number to "ON". Then, the function set with the function setting number P057 is enabled. (0: OFF / 1: ON)	0-1	0	0 (for DJ23)
P057	Suction synchronization time	This function setting number is enabled when "P056 Low pressure mode" is set to "ON". The device connected to Suction 2 (for the waste) will operate simultaneously with the device connected to Suction 1 (for the thread chain) during the time set with this function setting number. (Unit: ms)	0-2000	200	200 (for DJ23)
P058	Continuous material feeding suction ON / OFF	It is possible to select the type of operation of the device connected to Suction 2 (for the waste). (0: OFF / 1: Long suction / 2: Synchronized suction / 3: Intermittent suction (controlled by time) / 4: Intermittent suction (controlled by the number of stitches)) Refer to the Engineer's Manual for how to connect the device to Suction 2.	0-4	2	2 (for DJ23)
P059	Intermittent suction, time	This function setting number is enabled when P058 is set to "3: Intermittent suction (controlled by time)". The operating time of the intermittent suction. (Unit: x100ms)	1-600	2	2 (for DJ23)
P060	Intermittent suction, duration	This function setting number is enabled when P058 is set to "3: Intermittent suction (controlled by time)". The operating time of the intermittent suction. (Unit: x100ms)	1-600	2	2 (for DJ23)
P061	Intermittent suction, the number of stitches	This function setting number is enabled when P058 is set to "4: Intermittent suction (controlled by the number of stitches)". The number of stitches to be sewn while operating the intermittent suction. (Unit: stitch)	0-200	50	50 (for DJ23)
P062	Intermittent suction, stopping number of stitches	This function setting number is enabled when P058 is set to "4: Intermittent suction (controlled by the number of stitches)". The number of stitches to be sewn while operating the intermittent suction. (Unit: stitch)	0-200	50	50 (for DJ23)
P066	Auto lifter ON / OFF	It is possible to select the type of operation of the auto lifter with this function setting number. (0: OFF / 1: Front lifter / 2: Rear lifter / 3: Front and rear lifters)	0-3	0	0


No	Item	Description	Range	Initial value	
				DJ21/DJ22	DJ23/DJ33
P067	Presser foot lifting during sewing ON / OFF	This function setting number is enabled when the sewing machine is operated with the foot pedal (except for the full automatic mode). It is used for setting whether or not the presser foot is automatically lifted when the foot pedal is returned to its neutral position. (0: OFF / 1: ON)	0-1	0	0
P068	Presser foot lifting by depressing the back part of foot pedal by half of its depressing depth	It is possible to select the type of presser foot lifting operation to be carried out when the back part of the foot pedal is fully depressed or depressed by half of its depressing depth. (0: Lifting the presser foot by depressing the back part of pedal by half-depth or by fully depressing the back part of pedal / 1: Lifting of the presser foot is OFF / 2: Lifting the presser foot by fully depressing the back part of pedal)	0-2	0	0
P069	Front lifter, duration	This function setting number is enabled when the function setting number P066 is set to "1: Front lifter" or "3: Front and rear lifters". It is used for setting the time that elapses from lifting to lowering of the presser foot. (Unit: ms)	50-2000	500	500
P070	Rear lifter, starting time	This function setting number is enabled when the function setting number P066 is set to "2: Rear lifter" or "3: Front and rear lifters". It is used for setting the delay time that elapses before the presser foot lifting operation starts. (Unit: ms)	0-2000	120	120
P071	Presser foot lifting time	The presser foot lifting time should be entered when the solenoid valve is used. It is an extended parameter for future use. (Not used)	10-990	50	50
P072	Presser foot retaining DUTY		10-90	20	20
P073	Presser foot protection time	This function setting number is used for setting the time during which the presser foot lifter is held in the ON state. (Unit: s)	1-120	5	5
P076	Front sensor, irradiation intensity	It is possible to adjust the output intensity of the front sensor (light projecting side). (Unit: %) * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-100	10	10
P077	Intermediate sensor, irradiation intensity	It is possible to adjust the output intensity of the intermediate sensor (light projecting side). (Unit: %) * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-100	10	10
P078	Rear sensor, irradiation intensity	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". It is possible to adjust the output intensity of the rear sensor (light projecting side). (Unit: %) * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-100	10	10
P079	Front sensor, material detection threshold	This is the threshold of detecting the presence / absence of the material with the front sensor. * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-700	600	600
P080	Intermediate sensor, material detection threshold	This is the threshold of detecting the presence / absence of the material with the intermediate sensor. * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-700	600	600
P081	Rear sensor, material detection threshold	This function setting number is enabled only in the case "DJ23/DJ33" is selected with the function setting number "P125 Model selection". This is the threshold of detecting the presence / absence of the material with the rear sensor. * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-700	450	450
P085	Transparent fabric, correction of material-detection threshold	The correction value set with this function setting number applies to the threshold of detecting in the case "0: Transparent fabric" is selected with the function setting number P088.	0-800	10	10

No	Item	Description	Range	Initial value	
				DJ21/DJ22	DJ23/DJ33
P086	Translucent fabric, correction of material-detection threshold	The correction value set with this function setting number applies to the threshold of detecting in the case "1: Translucent fabric" is selected with the function setting number P088.	0-800	50	50
P087	Standard fabric, correction of material-detection threshold	The correction value set with this function setting number applies to the threshold of detecting in the case "2: Standard fabric" is selected with the function setting number P088.	0-800	200	200
P088	Type of fabric	This function setting number is used for selecting the type of fabric to be sewn in order to correct the sensors' threshold of detecting the material. (0: Transparent fabric / 1: Translucent fabric / 2: Standard fabric)	0-2	2	2
P089	Selection of check pattern fabric	This function setting number is used in the case the fabric with grid pattern holes. In the case "DJ/21DJ22" is selected with the function setting number "P125 Model selection" (can be set in the Service level), the value of "P033 Number of stitches to prevent cloth trimming" must be changed from the initial value. (0: General fabric / 1: Check pattern fabric)	0-1	0	0
P090	Front sensor, reaction time	When the front sensor detects the presence of the material, the sewing machine's next operation is delayed by the time set with this function setting number. The smaller the value is set, the earlier the reaction time becomes. (Unit: ms)	10-990	50	50
P097	Number of products	The number of finished products is counted with this function setting number (Unit: Piece) It is necessary to set the counting method with the function setting number J13.	0000-9999	0000	0000
J04	Selection of voice language	This function setting number is used for selecting the voice language. (0: English / 1: Chinese / 2: Vietnamese / 3: Bengali / 4: Khmer / 5: Indonesian / 6: Turkish / 7: Korean / 8: Spanish / 9: Portuguese / 10: Italian / 11: French / 12: German / 13: Japanese) * At the time of shipment from the factory, audio output is available only in "0: English" and "1: Chinese". If you want to use any other language, it will be necessary to separately install the relevant audio file. Refer to the Engineer's Manual for details. * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	0-13	0	0
J05	Voice setting ON / OFF	This function setting number is used for setting the voice guidance to ON or OFF. (0: OFF / 1: ON)	0-1	1	1
J06	Voice volume setting	This function setting number is used for setting the volume of the voice guidance. (1: Small / 2: Medium / 3: Large) * This parameter cannot be changed to the initial value that has been factory-set at the time of shipment.	1-3	2	2
J10	Backlight brightness setting	This function setting number is used for setting the brightness of the backlight. (1: Dark / 2: Medium / 3: Bright)	1-3	3	3
J11	Backlight OFF time	This function setting number is used for setting the time to turn off the LCD backlight when the operation panel is left not-operated. (0: Backlight is not turned off / 1 - 250: Time to be elapsed until the backlight is turned off) (Unit: Minute)	0-250	30	30
J13	Counting method ON / OFF	This function setting number is used for setting the method to count the number of finished products for "P097 Number of products". (0: OFF / 1: Ascending order / 2: Descending order / 3: Ascending order (audio notification) / 4: Descending order (audio notification))	0-4	0	0

No	Item	Description	Range	Initial value	
				DJ21/DJ22	DJ23/DJ33
U01	Daily target	This function setting number is used for setting the daily target number of products to be sewn. (Unit: Piece)	0000-9999	0	0
U02	Number of times to count a piece of product	This function setting number is used for setting the number of times of thread trimming to be counted before the number of products increases by one. (Unit: Number of times)	1-50	10	10
U03	Working hours (Start time -)	This function setting number is used for setting the start time of sewing work.	00:00 ~ 23:59	8:00	8:00
U04	Working hours (- Ending time)	This function setting number is used for setting the ending time of sewing work. * This setting is used for the audio guidance.	00:00 ~ 23:59	17:00	17:00
U05	Break time 1 (Start time -)	This function setting number is used for setting the start time and ending time of a break. This setting is used for the audio guidance.	00:00 ~ 23:59	00:00	00:00
U06	Break time 1 (- Ending time)	* If no break time is provided, set U05 to "00:00". In this case, no audio guidance is provided. (Caution)	00:00 ~ 23:59	00:00	00:00
U07	Break time 2 (Start time -)	* If the break times 1, 2 and 3 are provided, it will be necessary to enter the start time and ending time of those break times in the descending order.	00:00 ~ 23:59	00:00	00:00
U08	Break time 2 (- Ending time)	* If you enter a break time that is not included in the working hours, no audio guidance will be given.	00:00 ~ 23:59	00:00	00:00
U09	Break time 3 (Start time -)		00:00 ~ 23:59	00:00	00:00
U10	Break time 3 (- Ending time)		00:00 ~ 23:59	00:00	00:00
N01	Main software version	This function setting number is used for displaying the main software version.			
N02	Operation panel software version	This function setting number is used for displaying the operation panel software version.			
N14	Sub software version	This function setting number is used for displaying the version of the software that is used by the sub CPU.			
N20	Voice language version	This function setting number is used for displaying the version of the language of the audio file.			

3-5. Details of setting of the main functions



<p>When the manual mode is selected</p> <p> E</p>	<p>If you change any of the below-stated parameters during sewing, the set value of the parameter will be rendered effective by depressing the back part of the pedal (refer to "3-14. Pedal operation" p.44).</p> <p>If you change any parameter other than those stated below during sewing, the set value of the parameter will be rendered effective immediately.</p> <p>If you change the parameter before starting sewing, the set value of the parameter will be rendered effective immediately.</p> <table border="1" data-bbox="472 1167 1428 1556"> <tr><td>P002</td><td>Soft start ON / OFF</td></tr> <tr><td>P003</td><td>Soft-start sewing speed</td></tr> <tr><td>P004</td><td>Number of soft-start stitches</td></tr> <tr><td>P038</td><td>Tension release ON / OFF</td></tr> <tr><td>P039</td><td>Tension-release continuing number of stitches at the beginning of sewing</td></tr> <tr><td>P049</td><td>Automatic suction ON / OFF</td></tr> <tr><td>P050</td><td>Front suction (for the thread chain), continuing number of stitches</td></tr> <tr><td>P056</td><td>Low pressure mode ON / OFF</td></tr> <tr><td>P057</td><td>Suction synchronization time</td></tr> <tr><td>P058</td><td>Continuous material feeding suction ON / OFF</td></tr> </table>	P002	Soft start ON / OFF	P003	Soft-start sewing speed	P004	Number of soft-start stitches	P038	Tension release ON / OFF	P039	Tension-release continuing number of stitches at the beginning of sewing	P049	Automatic suction ON / OFF	P050	Front suction (for the thread chain), continuing number of stitches	P056	Low pressure mode ON / OFF	P057	Suction synchronization time	P058	Continuous material feeding suction ON / OFF
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P058	Continuous material feeding suction ON / OFF																				
<p>When any mode other than the manual mode is selected</p>	<p>If you change the parameter during sewing, the set value of the parameter will be rendered effective after the completion of sewing.</p> <p>If you change the parameter during sewing and stop sewing before the end of sewing is reached, the set value of the parameter will be rendered effective when you start sewing from the beginning.</p> <p>If you change the parameter before starting sewing, the set value of the parameter will be rendered effective immediately.</p>																				

① Selection of the soft-start function (Function setting No. P002)

- P002 0: Soft-start OFF
- 1: Soft-start ON

In addition, the speed limit during the soft-start operation and the number of stitches that are sewn with the soft-start function can also be changed. (Function setting Nos. P003 - P004)

- P003 Settable range: 200 - 6000 [sti/min] <100 sti/min>
- P004 Setting range: 1 - 100 stitches

② **Selection of the sewing-end speed reduction function (Function setting No. P005)**

P005 0: Sewing-end speed reduction function OFF

1: Sewing-end speed reduction function ON

In addition, the speed limit during the sewing-end speed reduction and the number of stitch at which the sewing-end speed reduction function starts can also be changed. (Function setting Nos. P006 - P007)

P007 Settable range: 500 - 7000 [sti/min] <100 sti/min>

P006 Setting range: 1 - 200 stitches

③ **Stop-position setting (Function setting Nos. P013 - P014)**

This function setting number is used for setting the needle stop position when the sewing machine stops.

P013 0: Lower stop position

1: Upper stop position

It is also possible to set the needle stop position after the completion of thread trimming. (Function setting No. P014)

P014: 0: Lower stop position

1: Upper stop position

④ **One-shot function (Function setting No. P017)**

It is possible to select either the sewing machine is automatically started after the front sensor has detected the material or it is started by depressing the pedal once after the front sensor has detected the material.

P017 0: Automatic

1: Pedal

(Caution) This function is enabled only when  C is displayed on the operation panel while the full automatic mode is selected.

Added care should be taken when you change the set value of the P017. If you change the set value of the P017 from the initial value "1: Pedal" to "0: Automatic", the sewing machine will automatically start running immediately after the front sensor has detected the material.



Added care should be taken when you change the sewing mode to the full automatic mode if the P017 is set to "0: Automatic". In this case, the sewing machine will start sewing if the front sensor is blocked.


⑤ **Sewing mode (Function setting Nos. P018, P020 and P026)**

Function setting No. P018: Used for selecting either the sewing machine is operated under the full automatic mode or under the semi-automatic mode while the "P020 Automatic sensor" is set to "1: ON".

P018 0: Semi-automatic

1: Full automatic

While the full automatic mode is selected,  C is displayed on the operation panel. While the semi-automatic mode is selected,  D is displayed on the operation panel.

It is also possible to change the sewing mode by keeping button  ⑦ on the operation panel held pressed.

(Caution) While the full automatic mode is set selected, be aware that the sewing machine will start sewing if the front sensor is blocked with the material or fingers. Added care should be taken while the full automatic mode is selected.

Function setting No. 020: Used for selecting whether or not the sensor is used. If "0: OFF" is selected, the sewing machine will be placed under the manual mode.

P020: 0: OFF (Manual)

1: ON (Full automatic, semi-automatic, free stitching)

While the manual mode is selected,  E is displayed on the operation panel.

Function setting No. P026: It is possible to select either the semi-automatic mode or the free stitching mode with this function setting number.

Under the free stitching mode, the sewing machine will not stop as long as the front part of the pedal is held depressed after the completion of thread trimming.




P026: 0: OFF (Semi-automatic)
1: ON (Free stitching)

While the free stitching mode is selected, any of  C,  D and  E is not displayed on the operation panel.

[Simplified list]

This list indicates the setting method and function of the main parameters with respect to sewing modes.

Refer to the function setting list for the parameters that are not included in this simplified list.

Sewing mode		Full automatic	Semi automatic	Manual	Free stitching	Remarks
Operation panel display					No display	
P018: Full automatic / Semi-automatic mode		1 : Full automatic	0 : Semi automatic	—	0 : Semi automatic	Function is not changed over under the manual mode.
P020: Automatic sensor ON/OFF		1 : ON	1 : ON	0 : OFF	1 : ON	
P026: Free stitching ON/OFF		—	0 : OFF	—	1 : ON	Under the full automatic mode and the manual mode, free stitching function is not changed over.
P021: Front sensor ON/OFF		1 : ON 0 : OFF *1	1 : ON 0 : OFF	1 : ON 0 : OFF	1 : ON 0 : OFF	*1 If the front sensor is set to "OFF", the sewing machine operation will be disabled.
Start of sewing		Front sensor *2	Front sensor + Pedal	Pedal	Front sensor + Pedal	*2 If the "P017: One shot" is changed to "0: OFF", the sewing machine can be started only with the front sensor.
End of sewing	DJ21/DJ22	Intermediate sensor	Intermediate sensor	—	—	Under the manual mode or the free stitching mode, the sewing machine is operated with the pedal instead of the sensor.
	DJ23/DJ33	Rear sensor	Rear sensor	—	—	
	Pedal operation	Depressing on the back part of pedal	Neutral position	Neutral position	Neutral position	

Sewing mode	Full automatic	Semi automatic	Manual	Free stitching	Remarks
It is necessary to depress the back part of the pedal when turning the power ON.	○	—	—	—	For the sake of safety, the pedal operation is required only under the full automatic mode.
It is necessary to depress the back part of the pedal before starting sewing, when resetting the sewing machine from the backlight-OFF state.	○	—	—	—	

Caution) Under the full automatic mode, the sewing machine is started with the front sensor. It is therefore necessary to be careful to prevent the front sensor from being blocked.

Unlike other modes, under the full automatic mode, the sewing machine operates when the front sensor reacts to the material, etc. Only the operators who have received training on safety must operate the sewing machine under the automatic mode.

⑥ Sensor ON/OFF setting (Function setting Nos. P021 - P023)

Function setting No. P021: In the case the front sensor is set to "ON" with this function setting number,




N will be displayed on the operation panel when the front sensor detects the material.

If the front sensor has failed, set the P021 to "OFF".

P021 0: OFF
1: ON

(Caution) If the front sensor is set to "OFF", the automatic mode cannot be used.

Function setting No. P022: In the case the intermediate sensor is set to "ON" with this function setting number,  **P** will be displayed on the operation panel when the intermediate sensor detects the material.

If the intermediate sensor has failed, set the P021 to "OFF".

P022 0: OFF
1: ON

Function setting No. P052: In the case the "P020 Automatic sensor" is set to "ON" and the "P022 Intermediate sensor" is set to "OFF", while "DJ21/DJ22" is set selected with the "P125 Model selection" (setting of this function is enabled under the Service level), the number of stitches to be sewn after the material has passed the front sensor can be set with this function setting number so as to stop the sewing machine or activate the rear suction device (for the thread chain). (Function setting No. P052)

P052 Setting range: 0 - 50 stitches

Function setting No. P023: In the case the rear sensor is set to "ON" with this function setting number,



Q will be displayed on the operation panel when the rear sensor detects the material.

If the rear sensor has failed, set the P023 to "OFF".


P023 0: OFF
1: ON

(Caution) This function setting number is only enabled when "DJ23/DJ33" is selected with the "P125 Model selection" (setting of this function is enabled under the Service level). In addition, the full automatic mode is disabled for the DJ23/DJ33 model when both the "P022 Intermediate sensor" and "P023 Rear sensor" are set to OFF.

⑦ Selection of the automatic thread trimming function (Function setting No. P029)

Operation of the automatic thread trimmer can be selected with this function setting number.

- P029 0: OFF
1: Front thread trimming
2: Rear thread trimming
3: Front and rear thread trimming

Setting of the automatic thread trimming function can also be changed by keeping button  ⑧ on the operation panel held pressed.

When the front thread trimming is selected,  H is displayed on the operation panel.

When the rear thread trimming is selected,  J is displayed on the operation panel.

When the front and rear thread trimming is selected,  H and  J are displayed on the operation panel.

(Caution) This function setting number is only enabled while "DJ23/DJ33" is selected with the "P125 Model selection" (setting of this function is enabled under the Service level).

While "DJ21/DJ22" is selected with the "P125 Model selection", the number of stitches to be sewn before starting front thread trimming after the intermediate sensor has detected the material can be set with the function setting number P031.

P031 Setting range: 0 - 50 stitches

Function setting No. 032: Used for setting the number of stitches to be sewn before starting the rear thread trimming after the rear sensor has detected the material.

P032 Setting range: 0 - 50 stitches

Function setting No. P035: Used for setting the thread trimming operating time.

P035 Setting range: 30 - 990 [ms]

⑧ Automatic constant-speed thread trimming (Function setting No. P030)

Automatic constant-speed thread trimming is set with this function setting number.

- P030 0: OFF
1: Automatic constant-speed thread trimming

(Caution) This function setting number is only enabled while "DJ23/DJ33" is selected with the "P125 Model selection" (setting of this function is enabled under the Service level). In addition, the manual mode is not the subject of this function setting number.

From the time the front sensor detects the material to the time the intermediate sensor detects it, the sewing machine operates at the speed that is set with the "P003 Soft-start sewing speed". During this section, the sewing machine can be controlled with the pedal.

From the time the intermediate sensor detects the material to the time the front thread trimming is completed, the sewing machine operates at the speed set with the "P003 Soft-start sewing speed". During this section, the sewing machine cannot be controlled with the pedal.

(Caution) If you turn the main shaft at a speed that is lower than the set value of the "P003 Soft-start sewing speed", the main shaft running speed will suddenly increase when the sewing machine performs front thread trimming.

From the time the front thread trimming is completed to the time the rear sensor detects the material, the sewing machine operates at the speed that is set with the "P001 Maximum sewing speed". During this section, the sewing machine can be controlled with the pedal.

From the time the material passes the rear sensor to the time the rear thread trimming is completed, the sewing machine operates at the speed that is set with the "P007 Sewing-end speed reduction"

During this section, the sewing machine cannot be controlled with the pedal.

⑨ **Selection of the tension release function (Function setting No. P038)**

This function setting number is used for selecting the tension release operation.

- P038 0: OFF
1: Front open
2: Rear open
3: Front and rear open

(Caution) This function setting number is enabled only when "DJ21/DJ22" is selected with the "P125 Model selection" (setting of this function is enabled under the Service level).

Function setting No. P039: Used for setting the number of stitches for which the tension release operation is continued at the beginning of sewing after the front sensor has detected the material.

- P039 Setting range: 1 - 50 stitches

Function setting No. P040: Used for setting the number of stitches for which the tension release operation is continued at the end of sewing after the machine runs the number of stitches set with the function setting number P041.

- P040 Setting range: 1 - 100 stitches

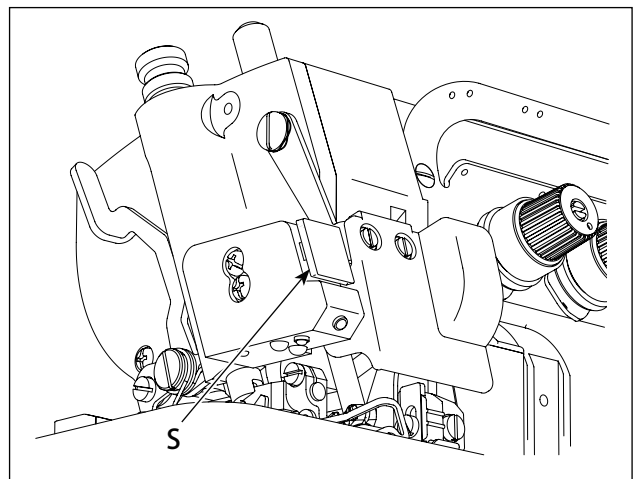
Function setting No. 041: Used for setting the delaying number of stitches to be sewn before the tension-release operation is started at the end of sewing after the material has passed the intermediate sensor.

- P041 Setting range: 0 - 50 stitches

(Caution) If the function setting number "P041 Number of stitches to start releasing the tension at the end of sewing" is set to the number of stitches that exceeds the total number of stitches set with the "P051 Rear suction (for the thread chain) continuing number of stitches" and with the "P052 Rear suction (for the thread chain) starting number of stitches", the tension will not be released at the end of sewing.

⑩ **Manual thread trimming (Function setting Nos. P042 - P045, P054 - P055)**

Manual thread trimming is carried out by pressing the hand switch **S**.



Function setting No. P042: Used for setting the manual thread trimming duration.

- P042 Setting range: 1 - 50
[x 100 ms]

(Caution) This function setting number is enabled only when "DJ21/DJ22" is selected with the "P125 Model selection" (setting of this function is enabled under the Service level).

The sewing machine continues thread trimming operation as long as the hand switch is held pressed.

Even if the duration elapsed from pressing to releasing the hand switch is shorter than the set value of the P042, the sewing machine will perform thread trimming during the time set with this function setting number P042.

Function setting No. P043: Used for setting the number of revolutions of the main shaft in the case of manual thread trimming.

P043 Setting range: 500 - 7000 [sti/min] <10 sti/min>

(Caution) This function setting number is enabled only when "DJ21/DJ22" is selected with the "P125 Model selection (setting of this function is enabled under the Service level). The main shaft will not rotate at a speed that exceeds the maximum sewing speed set with the "P001 Maximum sewing speed".

Function setting No. P044: Used for setting the number of times of thread trimming in the case of the manual thread trimming.

P044 Setting range: 1 - 5 times

(Caution) This function setting number is enabled only when "DJ23/DJ33" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).

Function setting No. P045: In the case the function setting number "P044 Number of times of manual thread trimming" is set to two or more, the interval between two consecutive times of thread trimming can be set with the function setting number P045.

P045 Setting range: 30 - 990 [ms]

(Caution) This function setting number is enabled only when "DJ23/DJ33" is selected with the "P125 Model selection (setting of this function is enabled under the Service level). If a short interval is set, the knife may fail to operate in time, resulting in poor trimming of the thread. Set the thread trimmer operation interval appropriately.

Function setting No. P054: Used for selecting the type of the suction operation for manual thread trimming.

P054 0: OFF

1: Rear suction (for the thread chain)

2: Front and rear suction (for the waste and the thread chain)

(Caution) In the case the suction operation for manual thread trimming is different from the operation set with the "P049 Automatic suction ON/OFF", both suction operations will be carried out separately.

Function setting No. P055: Used for setting the suction time for manual thread trimming.

P055 Setting range: 0 - 2000 [ms]

(Caution) In the case the "DJ21/DJ22" is set selected with the "P125 Model selection (setting of this function is enabled under the Service level), suction operation will be carried out continuously the hand switch is held pressed.

Even if the duration elapsed from pressing to releasing the hand switch is shorter than the set value of the P055, the suction device will operate during the time set with this function setting number P055.

⑪ Selection of the automatic suction function (Function setting No. P049)



The type of the automatic suction operation can be selected.

P049 0: OFF

1: Front suction (for the thread chain)

2: Rear suction (for the thread chain)

3: Front and rear suction (for the thread chain)

The setting of the automatic suction function can also be changed by pressing button  7 on the operation panel. When the front suction, rear suction or the front and rear suction is selected,  G is displayed on the operation panel.

Function setting No. P050: Used for setting the number of stitches to be sewn continuously before the front suction device stops after the intermediate sensor has detected the material.

P050 Setting range: 0 - 50 stitches

Function setting No. P051: Used for setting the continuing number of stitches to be sewn before the rear suction operation stops after the machine runs the number of stitches set with the function setting number P052.

P051 Setting range: 0 - 100 stitches

(Caution) This function setting number is enabled only when "DJ21/DJ22" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).

Function setting No. P052: Used for setting the delaying number of stitches to be sewn before the rear suction operation is started after the material has passed the intermediate sensor. If the "P022 Intermediate sensor" is set to "OFF", the sewing machine will stop or carry out rear suction operation after it has sewn this number of stitches after the material has passed the front sensor.

P052 Setting range: 0 - 50 stitches

(Caution) This function setting number is enabled only when "DJ21/DJ22" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).

Function setting No. P053: Used for setting the duration to be elapsed before the rear suction operation is stopped after the sewing machine has started the rear thread trimming.

P053 Setting range: 0 - 5000 [ms]

**(Caution) This function setting number is enabled only when "DJ23/DJ33" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).
If the rear suction is set to "OFF", the rear suction operation will not be carried out.**

※The DJ33 is not equipped with the suction device, the rear suction operation can not be carried out.

⑫ Selection of the auto-lifter function (Function setting No. P066)


Type of the auto-lifter operation can be selected.

P066 0: OFF

1: Front lifting



2: Rear lifting

3: Front and rear lifting

The setting of the auto-lifter function can also be changed by pressing button  8 on the operation panel.

When the front lifting is selected,  K is displayed on the operation panel.

When the rear lifting is selected,  L is displayed on the operation panel.

When the front and rear lifting is selected,  K and  L are displayed on the operation panel.

Function setting No. P069: Used for setting the duration to be elapsed before the front lifter comes down after it has gone up.

P069 Setting range: 50 - 2000 [ms]

Function setting No. P070: Used for setting the delaying time to be elapsed until the rear lifting is started.

P070 Setting range: 0 - 2000 [ms]

⑬ Selection of the grid pattern fabric (Function setting No. P089)

Select this function setting number when sewing a fabric with holes arranged in a grid pattern.

P089 0: General fabric

1: Grid pattern fabric

Function setting No. P033: Used for setting the number of stitches to allow the sensor to skip the holes arranged in a grid pattern.

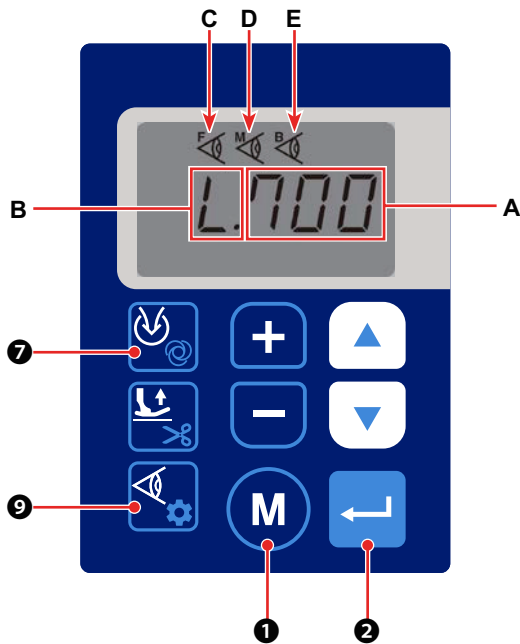
P033 Setting range: 0 - 50 stitches


(Caution) Set an appropriate number of stitches in accordance with the hole configuration.


The initial value of the function setting number P033 is "0" when "DJ21/DJ22" is selected or "8" when "DJ23/DJ33" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).

3-6. Adjusting the sensitivity of sensors



It is possible to adjust the sensitivity of the sensors that detect the material placed on the main body (near the needle entry area) of the sewing machine.






- 1) Sensor values can be checked by pressing  **9** on the normal sewing screen.


Every time  **9** is pressed, the set values of the sensors are displayed in the written order repeatedly: Current set value of the front sensor, material-detection threshold of the front sensor (function setting No. P079), current set value of the intermediate sensor, material-detection threshold of the intermediate sensor (function setting No. P080), current set value of the rear sensor, material-detection threshold of the rear sensor (function setting No. P081); then returns to the current set value of the front sensor, and so on.



The current set value and the material-detection threshold of the rear sensor are displayed only in the case "DJ23/DJ33" is set selected with the "P125 Model selection (setting of this function is enabled under the Service level).


Press  **1** or  **2** to exit from sensitivity display and return to the sewing screen.



While the current set value of the front sensor is being displayed, the numeric value **A** and  **C** are displayed on the operation panel.

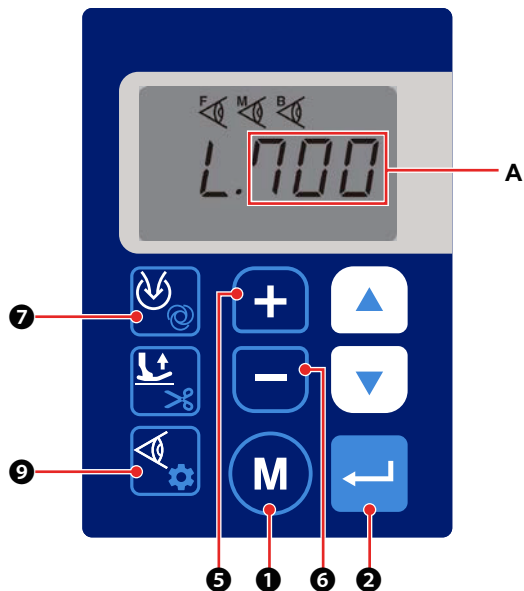
While the material-detection threshold of the front sensor is being displayed, the numeric value **A**,  **B** and  **C** are displayed on the operation panel.


While the current set value of the intermediate sensor is being displayed, the numeric value **A** and  **D** are displayed on the operation panel.


While the material-detection threshold of the intermediate sensor is being displayed, the numeric value **A**,  **B** and  **D** are displayed on the operation panel.

While the current set value of the rear sensor is being displayed, the numeric value **A** and  **E** are displayed on the operation panel.

While the material-detection threshold of the rear sensor is being displayed, the numeric value **A**,  **B** and  **E** are displayed on the operation panel.






2) Material-detection thresholds of the sensors can be changed by keeping  9 held pressed on the normal sewing screen.


Every time  9 is held pressed, the material-detection thresholds of the sensors are displayed for changing in the written order repeatedly: Material-detection threshold of the front sensor (function setting No. P079), material-detection threshold of the intermediate sensor (function setting No. P080), material-detection threshold of the rear sensor (function setting No. P081); then returns to the material-detection threshold of the front sensor, and so on.




The rear sensor data are displayed only when "DJ23/DJ33" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).

If you want to change the threshold and numeric value A of the sensors, change them with  5 and  6.

While you are changing the threshold of one sensor, the current entry will be confirmed and saved by keeping  9 held pressed to display the next sensor.

If you want to cancel the entry of the threshold of the sensor before confirming it and restore the screen to the sewing screen, press  1.

If you want to confirm the current entry of the threshold and restore the screen to the sewing screen, press  2.

Thresholds of the sensors can also be set with the function setting numbers P079 to P081.

P079 - P081 Setting range: 0 - 700

3) Irradiation intensity of the sensors (output intensity on the light projection side) can be changed with the function setting numbers P076 to P078.

P076 - P078 Setting range: 0 - 100

Input increment is [%]. Zero (0) is the minimum irradiation intensity and 100 is the maximum irradiation intensity.



The rear sensor data are displayed only when "DJ23/DJ33" is selected with the "P125 Model selection (setting of this function is enabled under the Service level).

The material-detection thresholds of the sensors (function setting numbers P079 - P081) as described in 2) and the irradiation intensities of the sensors (function setting numbers P076 - P078) can be automatically set with the "P091 Automatic adjustment of sensors" (setting of this function is enabled under the Service level).

Refer to the Engineer's Manual for details.

4) Type of fabric for sewing is set with the function setting number P088.

- P088 0: Transparent fabric
- 1: Translucent fabric
- 2: Standard fabric

When the transparent fabric is selected, the sensitivity of the sensors is increased to be able to detect the fabric with a higher transmission. On the other hand, short threads or cloth chips may be detected mistakenly.

Function setting No. P085: In the case the transparent fabric is selected, the value set with this function setting number will be used as a correction value for the material-detection threshold of the sensors.

P085 Setting range: 0 - 800

When the translucent fabric is selected, the sensitivity of the sensors becomes medium to be able to detect the translucent fabric.

Function setting No. P086: In the case the translucent fabric is selected, the value set with this function setting number will be used as a correction value for the material-detection threshold of the sensors.

P086 Setting range: 0 - 800

When the standard fabric is selected, the sensitivity of the sensors is decreased to detect the fabric with a lower transmission. Likelihood of false detection of short threads or cloth chips is reduced.

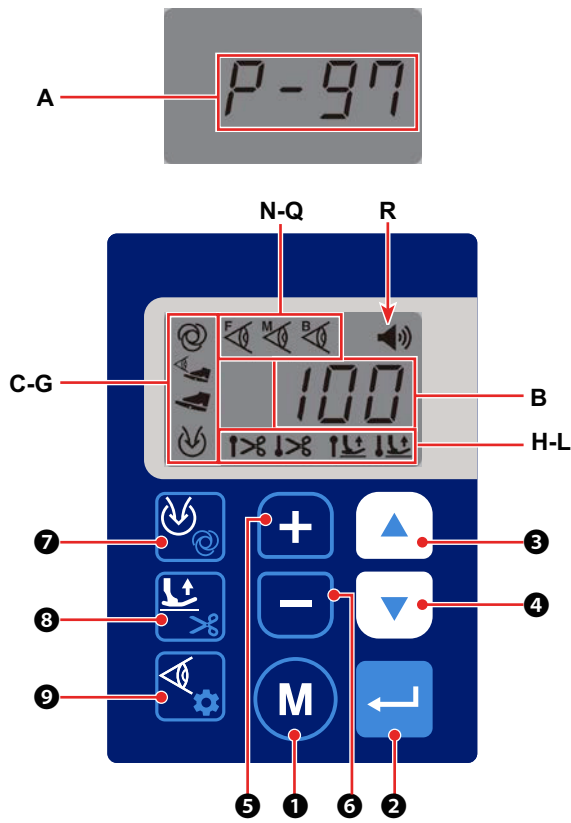
Function setting No. P087: In the case the standard fabric is selected, the value set with this function setting number will be used as a correction value for the material-detection threshold of the sensors.

P087 Setting range: 0 - 800

The final thresholds of the sensors are obtained by reducing the correction values for the material-detection thresholds set with the function setting numbers P085 to P087 from the material-detection thresholds set with the function setting numbers P079 to P081. If the values detected by the sensors are smaller than the final thresholds, the sensors will confirm the presence of a fabric.

3-7. No. of pcs. counter

The number of pieces produced can be counted.



1) Referring to "3-3. Function setting" p.15, call the function setting number P097 (A).

Press ② to display the No. of pcs. counter.

If you want to return to the normal sewing screen, press ①.

2) The current No. of pcs. counter is displayed (B).

It is possible to carry out sewing with the No. of pcs. counter displayed on the operation panel.

On the LCD screen, the currently-selected function setting (C - L, R) and ON/OFF state of the sensors (N - Q) are displayed.

On the explanation screen, functions that are not displayed when "DJ21/DJ22" is selected with the "P125 Model selection" (setting of this function is enabled under the Service level) are included.

Every press on ③ increases the current value on the No. of pcs. counter one by one.

The displayed number on the No. of pcs. counter on the LCD screen increases immediately.

Every press on ④ decreases the current value on the No. of pcs. counter one by one.

The displayed number on the No. of pcs. counter on the LCD screen decreases immediately.

Function setting No. U02: With this function setting number, it is possible to change the number of times of thread trimming to be counted before increasing the No. of pcs. counter by one.

Every time ⑤ is pressed, the current set value of the number of times of thread trimming to be counted before adding one to the No. of pcs. counter can be increased one by one.

Every time ⑥ is pressed, the current set value of the number of times of thread trimming to be counted before adding one to the No. of pcs. counter can be decreased one by one.

When the number of times of thread trimming counted reaches the set value of the function setting number U02 by pressing ⑤ and ⑥, one is added to the No. of pcs. counter.

Use this function to change the current value of the number of times of thread trimming in such a case as to re-start sewing from the middle of production. It is not possible to display the current value of the number of times of thread trimming to be counted before adding one to the No. of pcs. counter.



3) It is possible to set the method to count the number of pieces produced. (Function setting No. J13)

- J13 0: OFF
- 1: Ascending order
- 2: Descending order
- 3: Ascending order (audio notification)
- 4: Descending order (audio notification)

The audio notification is given when the function setting number "J05 Audio setting" is set to "ON" and "R" is displayed on the operation panel.


In the case the ascending order is selected, the audio message "Set value is reached on the counter" will be given when the daily target number of pieces that is set with the function setting number "U01 Daily target" is reached.




In the case the descending order is selected, the audio message will be given when the counter reaches zero (0).


4) It is possible to reset the No. of pcs. counter by keeping  ③ and  ④ held pressed simultaneously.

While the ascending order is selected, the counter is reset to zero (0).

While the descending order is selected, the counter is reset to the target value set with the function setting number "U01 Daily target".

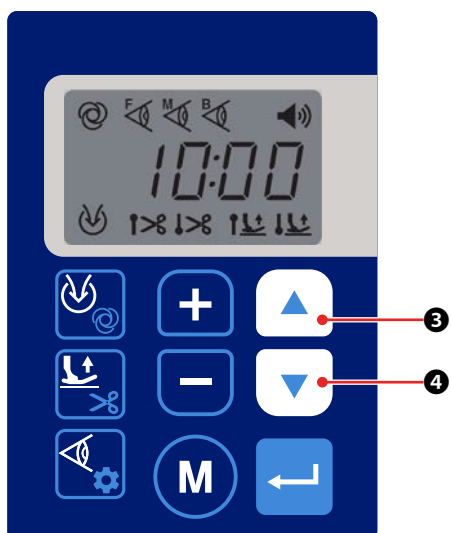
5) Press  ① if you want to return to the function setting screen.





Function setting parameters cannot be changed while the No. of pcs. counter is displayed on the operation panel including operation of buttons  ⑦ ,  ⑧ ,  ⑨ .

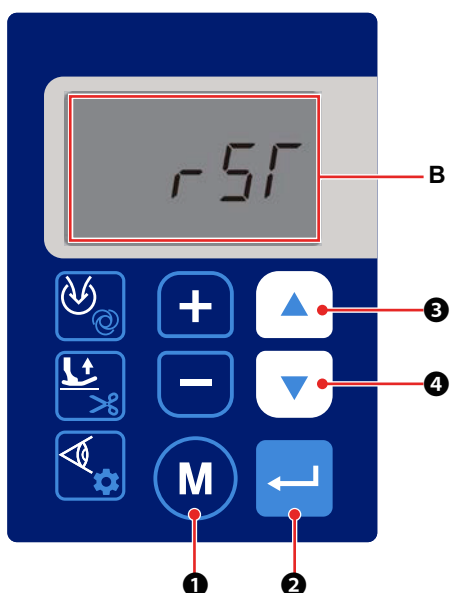
If you want to change the setting of the parameter, press  ① once to return to the function setting screen, and change the parameter appropriately referring to **"3-3. Function setting" p.15.**




3-8. Initialization of the function setting data



The function setting data you have changed arbitrarily can be stored in memory. If you change the data afterward, it can be returned to the aforementioned data that you have stored in memory.




- 1) If you simultaneously hold down  **3** and  **4** or turn ON the power to the sewing machine while simultaneously pressing  **3** and  **4** under the normal state of sewing, the initialization screen "RST" (B) will be displayed.



- 2) After you have kept  **3** and  **4** held pressed simultaneously to display the initialization screen, all set values can be initialized to those stored in memory as described in **"3-3. Function setting" p.15** by pressing  **2**.

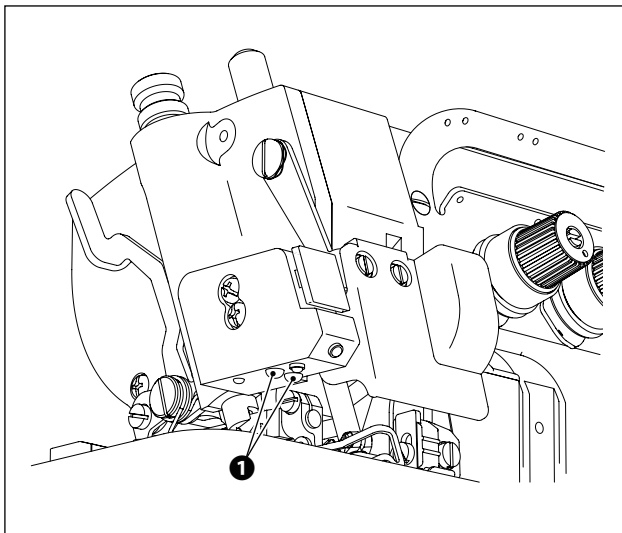
In the case you have turned the power ON by pressing  **3** and  **4** simultaneously, the set values will be reset to the factory-set initial values at the time of shipment. In this case, the set values you have stored in memory as described in **"3-3. Function setting" p.15** will also be initialized to the factory-set values.

Initialization can be cancelled by pressing  **1**.



- 3) During the initialization, the full-screen is displayed. After the completion of the initialization, the screen returns to the normal sewing-state screen.

3-9. Hand LED light



Brightness of hand LED light ① can be changed by pressing ⑥ . When you keep ⑥ held pressed for a long time, the light adjustment function is changed over to the color temperature changing function. In this state, the color temperature can be changed by pressing ⑥ . If you wait for three seconds without pressing any button, the color temperature changing function will be automatically returned to the light adjustment function.

In the case the audio output is placed in ON, the sewing machine operation may differ from the audio message depending on the timing of changeover of adjustment target between the dimming and the color temperature. If such a difference occurs, temporarily stop operating the sewing machine (for three seconds or more) before re-starting it.

Brightness / color temperature changing method is as shown in the tables given below.

(Values [%] in the table only provide reference data that helps clarify the explanation.)

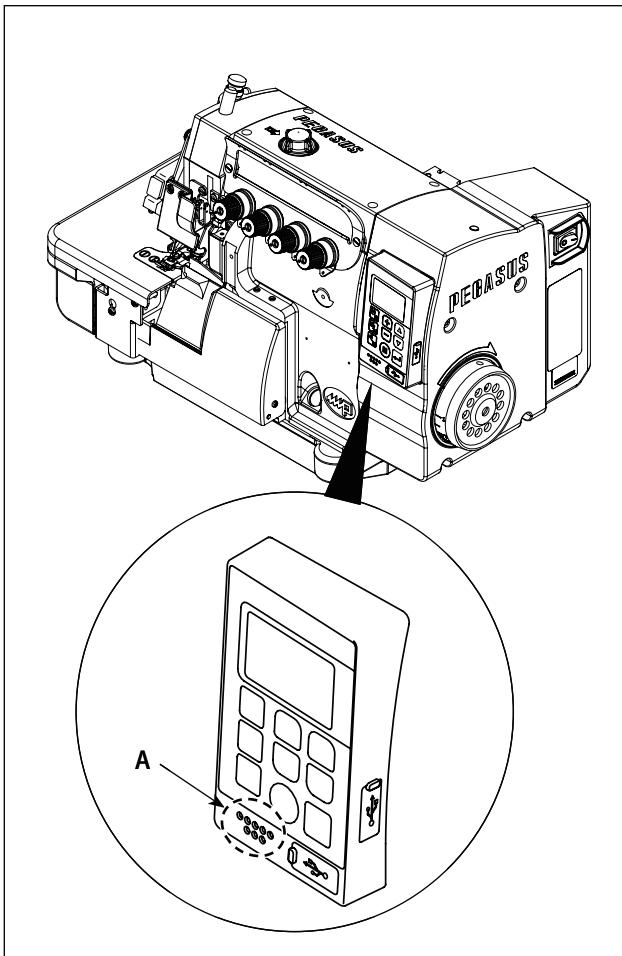
* If you want to change the color temperature, change it when you select the light adjustment (dimming) step from five different steps (1 - 5).

Color temperature		
Steps	White [%]	Yellow [%]
0	100	0
1	90	10
2	80	20
3	70	30
4	60	40
5	50	50
6	40	60
7	30	70
8	20	80
9	10	90
10	0	100

Light adjustment (Dimming)	
Steps	Intensity [%]
0	0
1	20
2	40
3	60
4	80
5	100

3-10. Audio guidance

Audio guidance messages, as described below, are given from the portion **A** when you turn the power ON/OFF, operate the sewing machine or operate the operation panel.

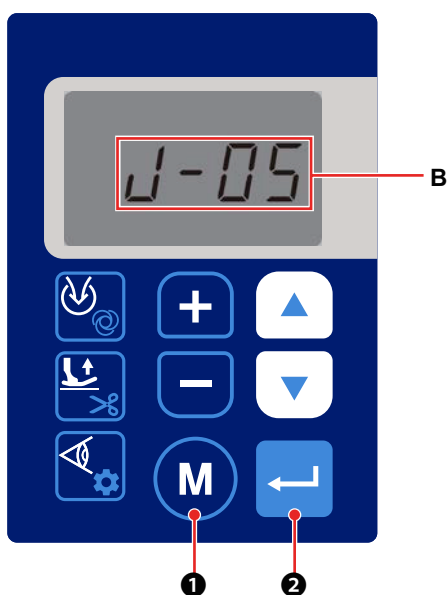


- ① **When turning the power ON**
..... "It is (day of week), (month) (day)", etc.
- ② **When turning the power OFF**
..... "Thank you for your work", etc.
- ③ **When operating the sewing machine**
..... "Set value on the counter has been reached"
..... "Presser foot protection ON"
..... "Cloth plate cover protection ON"
..... "Eye protection cover ON"
..... "Kindly refer to the "Lists of errors" by using the QR code.", etc.
- ④ **When operating the operation panel**
..... Content of the parameter you have changed is notified with the audio guidance.

Depending on the sewing machine operation status while the audio guidance is being given, the next audio guidance may begin before the current audio guidance is completed, normally-output audio guidance may be omitted or the audio guidance may be given later than the actual operation.



ON/OFF state and sound volume of the audio guidance can be set.





- 1) Call the function setting number J05 referring to "**3-3. Function setting**" p.15 (**B**). The status of the audio guidance can be set to ON / OFF.

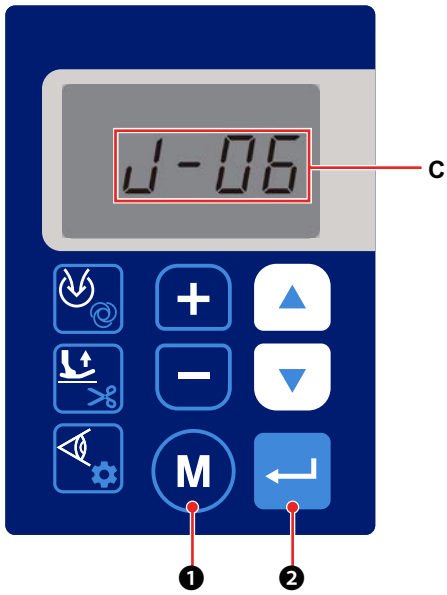
(Function setting No. J05)

J05 0: OFF

1: ON



Press  ② to confirm ON/OFF setting of the audio guidance. The status of the audio guidance is changed over to ON/OFF immediately after the screen is restored to the function setting screen.

Press  ① if you want to cancel this procedure and return to the function setting screen.



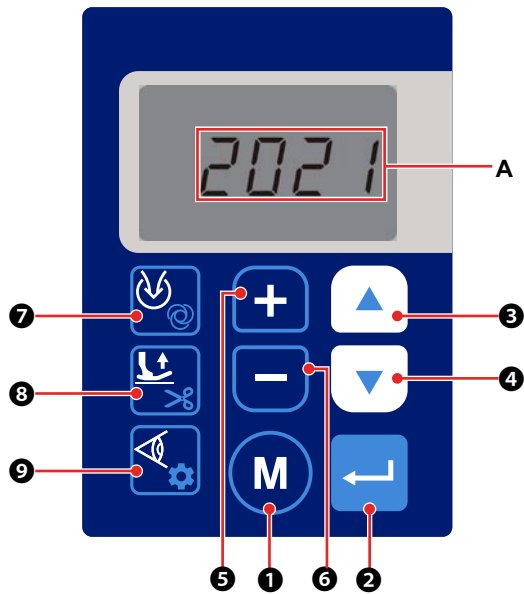
2) Call the function setting number J06 referring to "**3-3. Function setting**" p.15 (C). The sound volume of the audio guidance can be adjusted (function setting No. J06).

- J06 1: Small
- 2: Medium
- 3: Large

Press  **2** to confirm the sound volume of the audio guidance. The sound volume of the audio guidance is changed over to the confirmed setting immediately after the screen is restored to the function setting screen. Press  **1** if you want to cancel this procedure and return to the function setting screen.

3-11. Clock setting

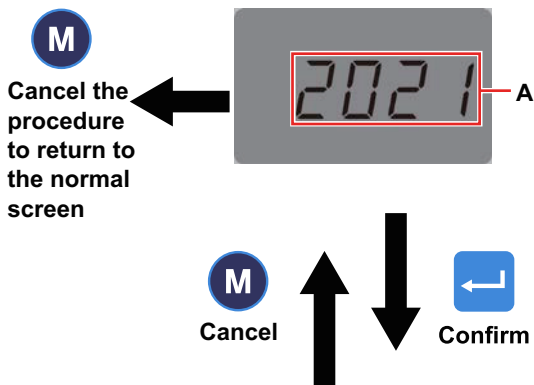
The time displayed on the operation panel can be changed.



- 1) The time change screen is displayed by keeping

M ① held pressed in the normal sewing state.

[Year]

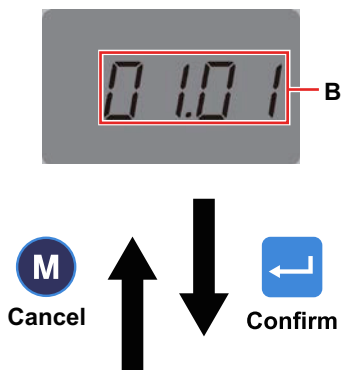


- 2) Firstly the "Year" (A) is displayed. Change it with

+ ⑤ and **-** ⑥ if necessary.

Press **←** ② to proceed to the setting of the "Month and day". Press **M** ① if you want to cancel this procedure and return to the normal sewing screen.

[Month and day]

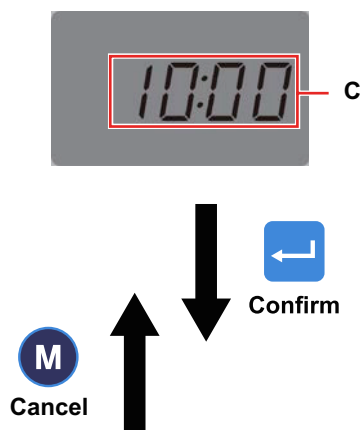


- 3) When you press **←** ②, the "Month and day" (B)

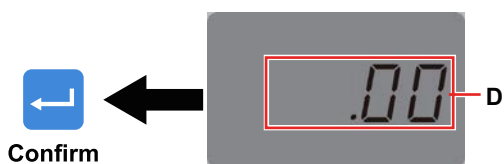
is displayed. Change it with **+** ⑤ and **-** ⑥ if necessary. Change the "Day" with **↑** ③ and **↓** ④.








Press **←** ② to proceed to the setting of the "Hour and minute". Press **M** ① if you want to cancel this procedure and return to the year setting.






[Minute and Second]



[Second]



4) When you press  ②, the "Hour: Minute" (C) is displayed. Change the "Hour" with  ⑤ and  ⑥ if necessary. Change the "Minute" with  ③ and  ④ if necessary. Press  ② to proceed to the setting of the "Second". Press  ① if you want to cancel this procedure and return to the setting of the "Month and day".

5) When you press  ②, the "Second" (D) is displayed. Change it with  ⑤ and  ⑥ if necessary. Press  ② to confirm the time setting. Then, the screen is restored to the normal sewing screen. Press  ① if you want to cancel this procedure and return to the setting of the "Hour: Minute".

6) In the case the function setting number "J05 Audio guidance" is set to "ON", the audio guidance will be given according to the time you have set following the steps of procedure 2) to 5) and the time you have set with the function setting number "U04 Working hours (- Ending time)". In addition, the audio guidance will be given in the case the break times are set respectively with the function setting numbers "U05 Break time 1 (start time -)", "U07 Break time 2 (start time -)" and "U09 Break time 3 (start time -)".



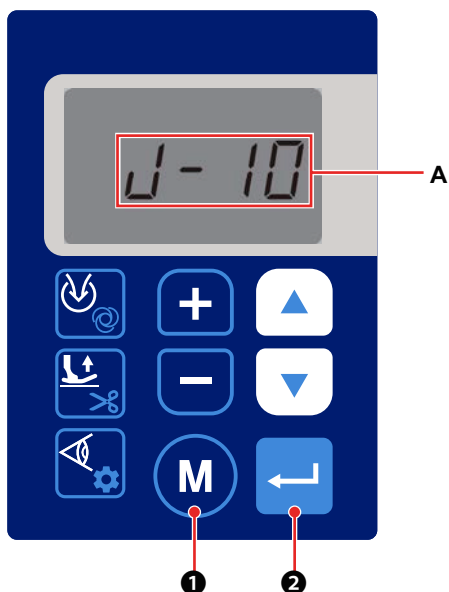
Enter the break times to the "Break time 1", "Break time 2" and "Break time 3" in descending order of time.

If you input a break time that is out of the working hours, the audio guidance will not be given.

3-12. Backlight


Brightness of the backlight for the operation panel LCD can be set.


It is also possible to set the time to turn OFF the LCD backlight when the operation panel is left without any operation for a predetermined time period.

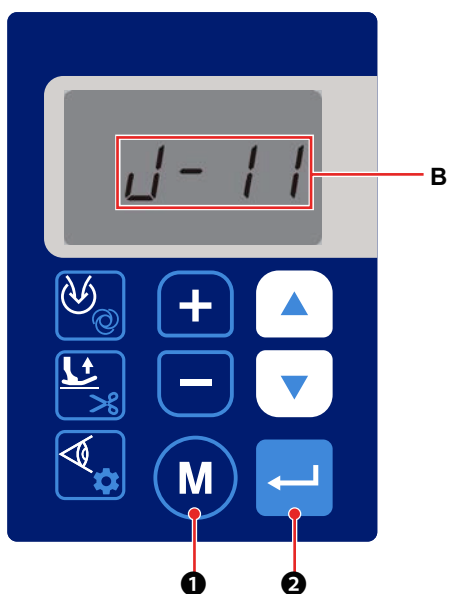


- 1) Call the function setting number J10 referring to "**3-3. Function setting**" p.15 (A). The brightness of the backlight can be set (function setting No. J10).

J06 1: Dark
 2: Medium
 3: Bright


Press  ② to confirm the brightness of the backlight. The backlight brightness is changed over to the confirmed setting immediately after the screen is restored to the function setting screen.


Press  ① if you want to cancel this procedure and return to the function setting screen.



- 2) Call the function setting number J11 referring to "**3-3. Function setting**" p.15 (B). The time to be elapsed before turning OFF the backlight when the operation panel is left without any operation can be set (function setting No. J11).

J11 0: Backlight is not turned OFF
 Setting range: 1 - 250 minutes

Press  ② to confirm the backlight turn-off time.

Press  ① if you want to cancel this procedure and return to the function setting screen.

While the backlight is OFF, the sewing machine will not be able to perform sewing even if you operate it (including the pedal switch and hand switch).

When the time to output the audio guidance is reached, the audio guidance is given even if the backlight is OFF as usual.

The backlight for the operation panel lights up only when you press any of the switches on the operation panel to allow the sewing machine to return to the normal mode.

The sewing machine does not react to the switch that you press at the time of resetting.

If an error occurs while the backlight is OFF, the backlight will be turned ON to display the error screen.

The sewing machine may be returned to the normal mode depending on the type of the error.

3-13. About the USB



WARNING :

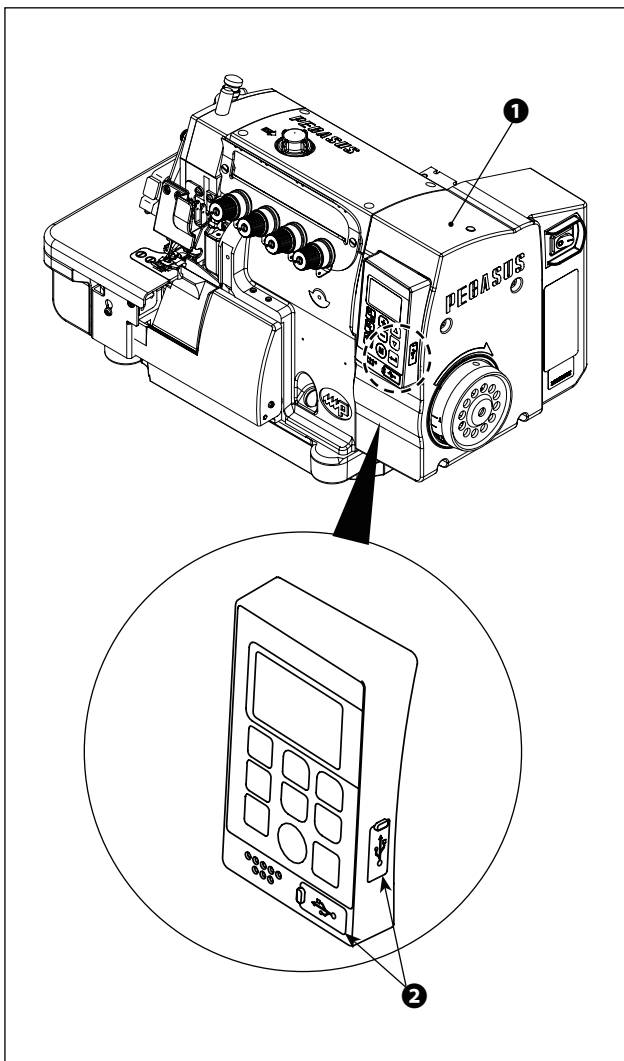
The device to be connected to the USB port should have the rated current value or less as shown below.

If any device rated current value of which is higher than the rated current value, the main body of the sewing machine or the USB device connected can be damaged or malfunction.

Rated current value of the USB port

USB port on the electrical box side: Maximum rated current value of 1 A

[Insertion position of the USB thumb drive]



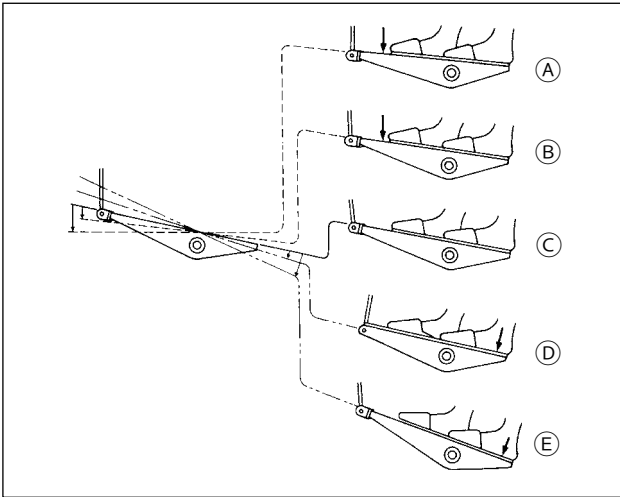
A USB connector is provided for electrical box **1** .

To use a USB thumb drive, remove connector cover **2** and insert the USB thumb drive into the USB connector.

* In the case a USB thumb drive is not used, the USB connector should be protected with connector cover **2** without exceptions.

If dust or the like enters the USB connector, a failure can be caused.

3-14. Pedal operation



[Pedal operation under the semi-automatic mode (factory-set at the time of shipment)]

- 1) Lightly depress the front part of the pedal to carry out low-speed sewing. (B)
- 2) Further depress the front part of the pedal to carry out high-speed sewing. (A)
- 3) Put your foot lightly on the pedal to stop the sewing machine. (C)

(The needle stop position differs depending on the setting of the relevant function you have selected on the operation panel. Refer to the explanation of the function setting for details.)

- 4) Depress the back part of the pedal during sewing to lift the presser foot. (D, E)
- 5) Depress the pedal after the completion of sewing to lift the presser foot. (D, E)

* Operation to lift the presser foot or stop the needle differs depending on the relevant function setting.

The sewing machine has been factory-set to the semi-automatic mode. The operation mode can be changed to the full automatic mode or manual mode by setting the relevant function appropriately.

[Full automatic mode]

When you change the status of the power switch from "OFF" to "ON", the characters [PEdL] appears on the operation panel.

Depress the back part of the pedal to place the sewing machine in the sewing state. (D, E)

While the front sensor is blocked, depress the front part of the pedal to start the sewing machine. (A, B)

If you lift your foot off the pedal to return it to the stop position swiftly, the sewing machine may malfunction depending on the relevant function setting. (C)


Carry out the operation to start and stop the sewing machine without lifting your foot off the pedal. (A, B, C)

* Memory switch P017: In the case the start mode is changed from "1" to "0", the sewing machine will start running even if you do not depress the front part of the pedal when the sensor is blocked. Added care should be taken in this mode. The method to temporarily stop the sewing machine remains the same. Depress the back part of the pedal to make a temporary stop. (D, E)

* In the case the main shaft stops rotating before the material is fed to the next sensor after the sewing machine has sewn the number of stitches set with the parameter "P024 Number of stitches between sensors", the sewing machine will re-start sewing when you depress the front part of the pedal. (A, B)



When you depress the back part of the pedal during sewing, the sewing machine stops and the characters [SToP] appear on the operation panel. (D, E)

If you want to re-start sewing, press  on the operation panel to reset the previous operation, then depress the front part of the pedal to re-start sewing. (A, B)

* Presser foot lifting operation, needle operation, thread trimming operation and suction operation differ depending on the setting of the relevant functions. (Refer to the explanation of the function setting for details.)

* Be aware that the sewing machine will start sewing when the front sensor is blocked not only by the material but also by other obstacle.

[Manual mode]

Under the manual mode, the material sensor is disabled. Under this mode, the sewing machine is operated with the pedal or the hand thread trimming switch.

Depress the back part of the pedal to lift the presser foot.

Depress the pedal to start sewing.

When you press the hand switch, the sewing machine rotates and the suction device operates. (Only for the DJ21/DJ22 model)

When you press the hand switch, the chain-off thread cutter and the suction device operate. (Only for the DJ23 model)

When you press the hand switch, the chain-off thread cutter operates. (Only for the DJ33 model)

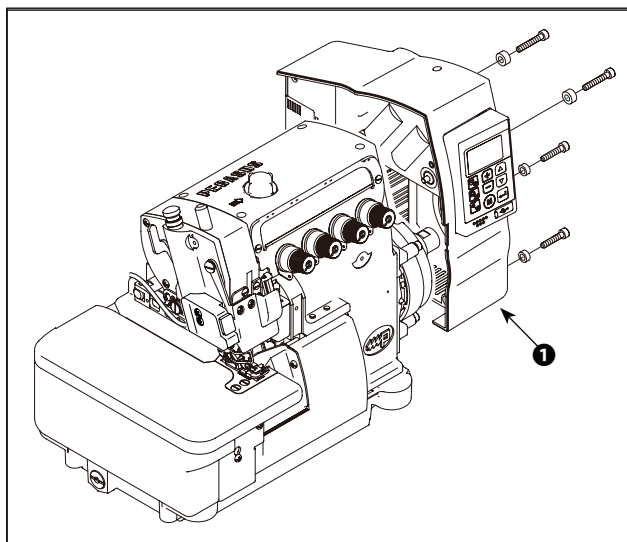
- * In accordance with the setting on the operation panel, the thread trimmer operates when you depress the back part of the pedal. (For the DJ21/DJ22 model, the sewing machine rotates.)
- * In the case the parameter "P036 Thread trimming by depressing back-part of pedal" is set to "1: With thread trimming", the sewing machine carries out thread trimming operation when you depress the back part of the pedal.

4. MAINTENANCE

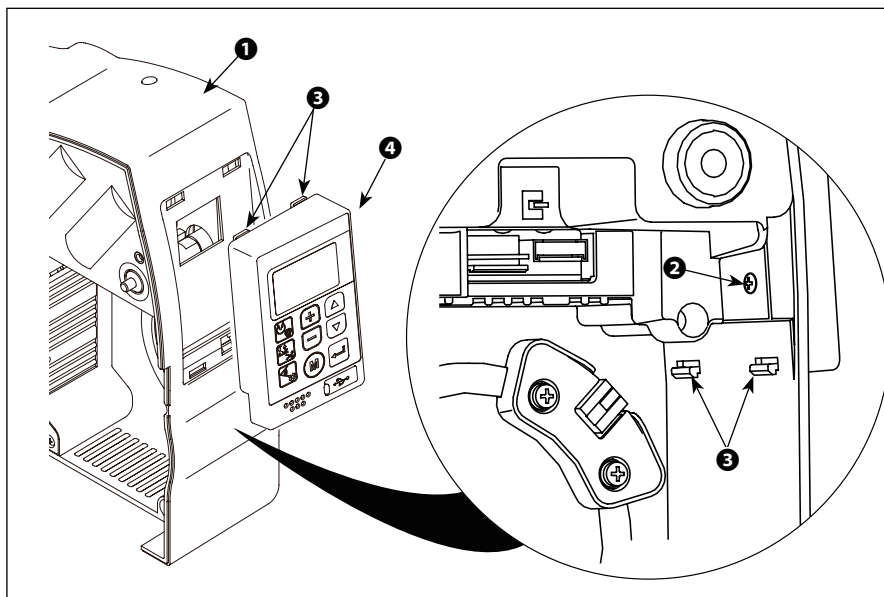
4-1. How to remove the batteries



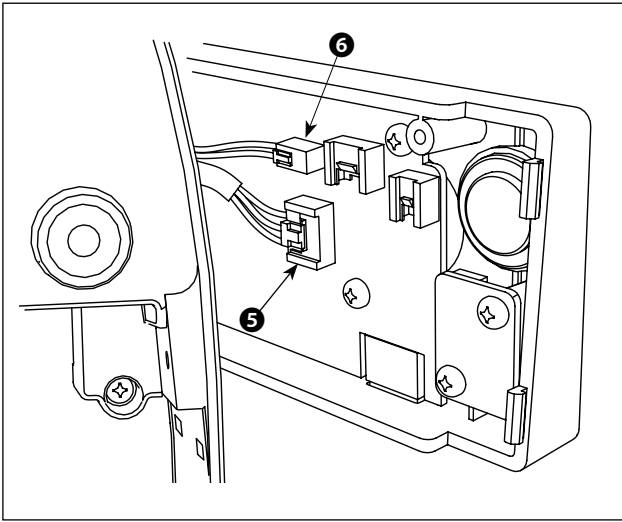
The operation panel has a built-in battery in order to allow the clock to work even when the power to the sewing machine is turned OFF. It is necessary to discard the battery properly in accordance with the relevant local laws and regulations.



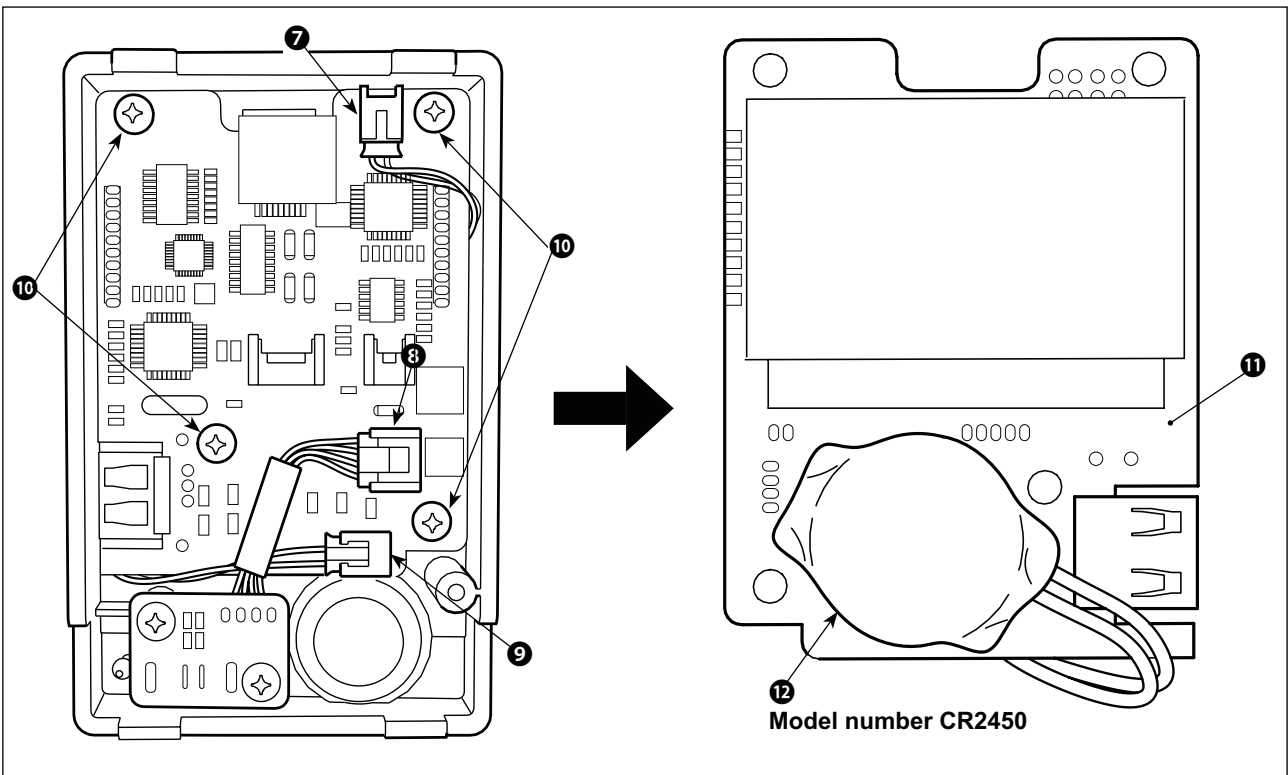
1) Detach electrical box **1** from the sewing machine head.



2) Remove screw **2** from electrical box **1**. Remove hooks **3** at four locations. Detach operation panel **4** from electrical box **1**.



- 3) Remove connectors **5** and **6** that connect operation panel **4** and electrical box **1** . Separate operation panel **4** from the electrical box.



- 4) Remove connectors **7** , **8** and **9** from the operation panel.
 5) Remove PCB fixing screws **10** (at four locations) to take out PCB **11** .
 6) **12** installed at the lower part of the front face of the PCB is the battery for clock .
 7) Remove the main body of the battery together with its case from the PCB.
 (Battery **12** is secured on PCB **11** with double-sided adhesive tape.)

5. ERROR CODE LIST

5-1. Error code list

Error code	Description
E01	Overvoltage error
E02	Low voltage error
E03/E03P	Communication fault between the operation panel and the electrical box
E05	Pedal signal fault
E07	Lock error This error is automatically reset when the pulley is turned.
E09	Upper stop position cannot be found during operation.
E10	Solenoid current is excessively large.
E11	Upper stop position cannot be found after the power is turned ON.
E14	Encoder signal or hall signal is not normal.
E15	Hardware overcurrent signal (fault signal)
E16	The presser foot is not placed in its correct position.
E17	The cloth plate cover is not placed in its correct position.
E18	The eye protection cover is not placed in its correct position.
E19	Electrolytic capacity connection error
E21	The operation panel PCB has re-started.
E41	There is no MAIN software program.
E42	There is no SUB software program.
E44	There is no voice software.

If there is no operation panel software program, "----" will be displayed.

Only for errors E16, E17 and E18, return the relevant parts to their correct positions and press



on the operation panel. Then, the sewing machine will be reset and return to its normal state. Be sure to check that there is no obstacle that may block the sensors before pressing



. If any of the sensor is blocked, the sewing machine may run suddenly.

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